United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Purdue University Agricultural Experiment Station and Indiana Department of Natural Resources, Division of Soil Conservation and State Soil Conservation Board

Soil Survey of Scott County, Indiana

How To Use This Soil Survey

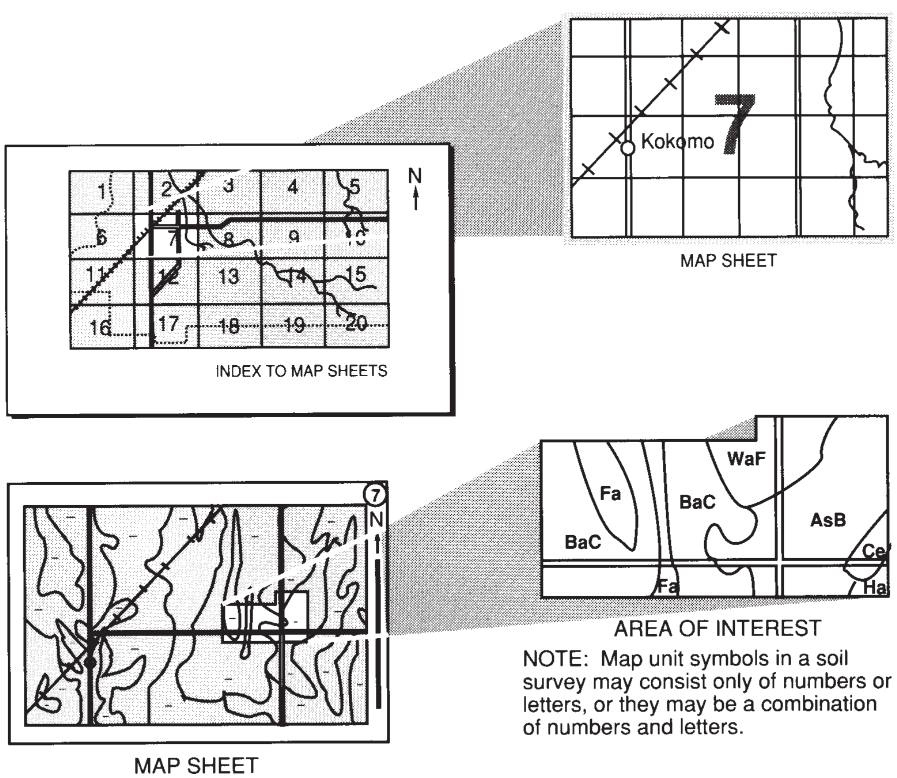
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1992. Soil names and descriptions were approved in 1995. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1992. This survey was made cooperatively by the Natural Resources Conservation Service, the Purdue University Agricultural Experiment Station, and the Indiana Department of Natural Resources, Division of Soil Conservation and State Soil Conservation Board. The survey is part of the technical assistance furnished to the Scott County Soil and Water Conservation District.

Cover: The Pekin soils (in the foreground) and Stendal soils, rarely flooded, are generally well suited to growing fescue and red clover for hay. Wetness of the Stendal soil is a management concern.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Jane E. Hardisty
State Conservationist
Natural Resources Conservation Service

Soil Survey of Scott County, Indiana

By Byron G. Nagel, Natural Resources Conservation Service

Fieldwork by Byron G. Nagel and Allan K. Nickell, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Purdue University Agricultural Experiment Station, and the Indiana Department of Natural Resources, Division of Soil Conservation and State Soil Conservation Board

Scott County is in southeastern Indiana (fig. 1). About 91 percent of the county is within the Southern Illinois and Indiana Thin Loess and Till Plain; about 9 percent is within the Kentucky and Indiana Sandstone and Shale Hills and Valleys; and less than 1 percent is within the Highland Rim and Pennyroyal major land resource areas.

The county has a total land area of about 193 square miles, or about 123,341 acres. Scottsburg is the county seat. Scottsburg and Austin are the largest cities. In 1996, the population of the county was about 22,800 (United States Department of Commerce, 1990).

Clark State Forest in southwestern Scott County has a land area of 6,000 acres, and Hardy Lake in northeastern Scott County has a water area of 741 acres. About 1,500 acres of State-owned land surrounds the lake.

The primary farm enterprises are cash grain crops and the production of livestock. Corn, soybeans, and winter wheat are the main cash grain crops. Tobacco is also grown. Hogs and beef cattle are the main kinds of livestock. Some poultry and sheep are also raised, and there are a few dairy operations in the county.

This soil survey updates and refines the soil survey of Scott County published in 1962 (USDA, 1962). It provides additional information and has larger maps, which show the soils in greater detail. It also provides additional information about soil interpretations.

General Nature of the County

This section provides general information about the physical and cultural features of Scott County. It describes history and development; physiography, relief, and drainage; and climate.

History and Development

Pigeon Roost was the first important settlement in Scott County. It was settled in 1809 and was practically destroyed by Indians in 1812. Most of the early settlers came from Kentucky, Tennessee, North Carolina, and Virginia.

Scott County was organized on February 1, 1820. Lexington was the original county seat. In 1871, the county seat was transferred to Scottsburg, because of its central location and proximity to a new railroad.

Physiography, Relief, and Drainage

The relief varies considerably across Scott County. The county is highly dissected by drainageways. Most of the county generally has narrow or moderately wide bottom lands, narrow, flat ridgetops, and sloping hillsides. The southwestern part of the county is part of an area known as the “Knobstone Escarpment.” This escarpment is characterized by very steep hills and knolls. The highest elevation in the county is about 1,017 feet above sea level. It is on the western side of the county, near the Scott-Washington County line. The lowest elevation, about 520 feet above sea level, is located at the point where the East Fork Muscatatuck River leaves Scott County.

The East Fork Muscatatuck River and its tributaries form the primary network of drainage within Scott County. Fourteen Mile Creek and the upper end of

Figure 1.—Location of Scott County in Indiana.

Silver Creek drain part of the southeastern corner of the county.

In September 1962, the Stucker Fork Conservancy District was formed. This conservancy district was established so that watershed structures could be built to help control flooding along Stucker Fork Creek and its tributaries. Twenty-one structures have been built throughout the county, and the frequency and duration of flooding have been reduced on the flood plains below these structures.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Scottsburg in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 31.3 degrees F and the average daily minimum temperature is 21.2 degrees. The lowest temperature on record, which occurred at Scottsburg on January 17, 1977, was -32 degrees. In summer, the average temperature is 74 degrees and the average daily maximum temperature is 85.8 degrees. The highest temperature on record, which occurred at Scottsburg on July 28, 1930, was 109 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 43.91 inches. Of this total, about 26.97 inches, or 61 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall was 8 inches at Scottsburg recorded on August 8, 1992. Thunderstorms occur on about 45 days each year, and most occur in July.

The average seasonal snowfall is 18 inches. The greatest snow depth at any one time was 20 inches recorded on January 22, 1918. On an average, 20 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 15 inches recorded on February 26, 1961.

The average relative humidity in midafternoon is about 58 percent. Humidity is higher at night, and the average at dawn is about 81 percent. The sun shines about 66 percent of the time possible in summer and 43 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 10.3 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; and the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Fieldwork in Scott County consisted primarily of soil transects conducted by soil scientists. Soil transects are a systematic way to sample a specific soil type. Soil borings are taken at regular intervals. Soil scientists then record the characteristics of the soil profiles that they study. They note color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features. This information can then be used to run statistical analysis for specific soil properties. These results, along with other observations, enable the soil scientists to assign the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analysis and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

Aerial photographs used in this survey were taken in 1988. Soil scientists also studied U.S. Geological Survey topographic maps enlarged to a scale of 1:12,000, ortho-photographs, and infrared photography to relate land and image features. Specific soil boundaries were drawn on the ortho-photographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines and tonal patterns on aerial photographs.

This survey area was mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals. In the legend for the detailed soil maps, narrowly defined units are indicated by symbols in which the first letter is uppercase and the second is lowercase. For broadly defined units, the first and second letters are uppercase.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Steff silt loam, 0 to 2 percent slopes, frequently flooded, brief duration, is a phase of the Steff series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Gnawbone-Kurtz silt loams, 20 to 60 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The map unit Pits, quarry, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see Contents) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AddA—Avonburg silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on the landform: Nearly level summits

Soil Properties and Qualities

Parent material: Loess and the underlying paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 9.8 inches

Composition

Avonburg and similar soils: 85 percent
Dissimilar inclusions: 15 percent
- Cobbsfork soils in shallow, closed depressions; on head slopes
- Nabb soils on narrow, elongated areas of summits

AddB2—Avonburg silt loam, 2 to 4 percent slopes, eroded

Setting

Landform: Till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess and the underlying paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.7 inches

Composition

Avonburg and similar soils: 75 percent
Dissimilar inclusions: 25 percent
- Nabb soils that have slopes of 4 to 6 percent; on shoulders and backslopes
- Wakeland soils on toeslopes
- Cobbsfork soils on head slopes

BbhA—Bartle silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.0 inches

Composition

Bartle and similar soils: 83 percent
Dissimilar inclusions: 17 percent
- Peoga soils in shallow, closed depressions
- Pekin soils on slight rises
- Bartle, rarely flooded, soils on flood-plain steps

BbhB—Bartle silt loam, 2 to 4 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 7.4 inches

Composition

Bartle and similar soils: 80 percent
Dissimilar inclusions: 20 percent
- Wakeland soils on toeslopes
- Pekin soils that have slopes of 4 to 6 percent; on shoulders and backslopes
- Peoga soils on head slopes

BcrAW—Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Natural levees and alluvial fans

Soil Properties and Qualities

Parent material: Channery, loamy alluvium
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 3.5 to 5.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 6.3 inches

Composition

Beanblossom and similar soils: 90 percent
Dissimilar inclusions: 10 percent
- A deep, somewhat poorly drained soil in drainageways
- Beanblossom soils, frequently flooded, on flood plains and alluvial fans
- A moderately deep soil over hard, black shale

BdoB—Bedford silt loam, 2 to 6 percent slopes

Setting

Landform: Hills underlain with limestone
Position on the landform: Summits

Soil Properties and Qualities

Parent material: Loess, loamy material, and a paleosol in clayey residuum
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 7.0 inches

Composition

Bedford and similar soils: 80 percent
Dissimilar inclusions: 20 percent
- A very deep, well drained, moderately permeable, soil on summits

BfbC2—Blocher, soft bedrock substratum-Weddel silt loams, 6 to 12 percent slopes, eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Blocher, soft bedrock

Parent material: Thin loess, loamy materials, and a paleosol in till over shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 9.0 inches

Weddel

Parent material: Loess and a paleosol in till and residuum from shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.2 inches

Composition

Blocher, soft bedrock, and similar soils: 46 percent
Weddel and similar soils: 30 percent
Dissimilar inclusions: 24 percent
- Blocher, soft bedrock substratum, severely eroded, soils on shoulders and the upper part of backslopes
- Weddel, severely eroded, soils on shoulders and the upper part of backslopes
- Coolville soils in areas on the lower part of backslopes
- Wakeland soils on toeslopes
- Weddel soils that have slopes of 2 to 6 percent; on summits

BfcC3—Blocher, soft bedrock substratum-Weddel complex, 6 to 12 percent slopes, severely eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Blocher, soft bedrock

Parent material: Thin loess, loamy materials, and a paleosol in till over shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.1 inches

Weddel

Parent material: Loess and a paleosol in till and residuum from shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 7.0 inches

Composition

Blocher, soft bedrock, and similar soils: 49 percent
Weddel and similar soils: 32 percent
Dissimilar inclusions: 19 percent
- Blocher, soft bedrock substratum, moderately eroded, soils and Weddel, moderately eroded, soils in areas on the lower part of backslopes
- Coolville soils in areas on the lower part of backslopes
- Wakeland soils on toeslopes
- Weddel soils that have slopes of 2 to 6 percent; on summits

BnyD3—Bonnell clay loam, 12 to 22 percent slopes, severely eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: 0 to 18 inches of loess or loamy materials and till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 7.8 inches

Composition

Bonnell and similar soils: 74 percent
Dissimilar inclusions: 26 percent
- Bonnell soils, moderately eroded, in areas on the lower part of backslopes
- Hickory soils on backslopes and intermixed throughout the unit
- Cincinnati and Blocher soils on shoulders and summits
- Holton soils on toeslopes

BobE5—Bonnell-Hickory clay loams, 15 to 30 percent slopes, gullied

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes
Other features: Between 30 and 50 percent of this map unit is gullied. The gullied areas consist of a network of U-shaped and V-shaped channels averaging 4 to 15 feet in depth.

Soil Properties and Qualities

Bonnell

Parent material: 0 to 18 inches of loess or loamy materials and till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 6.9 inches

Hickory

Parent material: 0 to 20 inches of loess and till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 7.9 inches

Composition

Bonnell and similar soils: 40 percent
Hickory and similar soils: 33 percent
Dissimilar inclusions: 27 percent
- Bonnell, moderately eroded, and Hickory, moderately eroded, soils on shoulders and backslopes between gullies
- Cincinnati and Blocher soils on shoulders and summits
- Trappist soils in areas on the lower part of backslopes

BodAH—Bonnie silt loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Backswamps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Depth to water table: 0 to 1 foot (apparent)
Ponding: 0.5 foot
Available water capacity to a depth of 60 inches: About 13.2 inches

Composition

Bonnie and similar soils: 75 percent
Dissimilar inclusions: 25 percent
- Bonnie soils, undrained, in backswamps that are typically in woods
- Stendal soils on higher lying flood-plain steps

BodAW—Bonnie silt loam, 0 to 1 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Backswamps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Depth to water table: 0 to 1 foot (apparent)
Ponding: 0.5 foot
Available water capacity to a depth of 60 inches: About 12.8 inches

Composition

Bonnie and similar soils: 73 percent
Dissimilar inclusions: 27 percent
- Bonnie soils, undrained, in backswamps that are typically in woods
- Stendal soils on higher lying flood-plain steps
- Bonnie, frequently flooded, soils in drainageways

BvoG—Brownstown-Gilwood silt loams, 25 to 75 percent slopes

Setting

Landform: Hills underlain with siltstone
Position on the landform: Backslopes

Soil Properties and Qualities

Brownstown

Parent material: Silty residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 3.8 inches

Gilwood

Parent material: Silty residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 5.0 inches

Composition

Brownstown and similar soils: 39 percent
Gilwood and similar soils: 39 percent
Dissimilar inclusions: 22 percent
- Gilwood and Wrays soils that have slopes of 6 to 18 percent; on shoulders and summits
- A shallow, well drained, soil on backslopes
- Beanblossom soils on flood plains
- Rock outcrop on backslopes

CkkB2—Cincinnati silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dissected till plains
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Loess and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.4 inches

Composition

Cincinnati and similar soils: 80 percent
Dissimilar inclusions: 20 percent
- Nabb soils on head slopes
- Blocher soils on shoulders

CldC2—Cincinnati-Blocher silt loams, 6 to 12 percent slopes, eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Cincinnati

Parent material: Loess and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 7.8 inches

Blocher

Parent material: Thin loess, loamy materials, and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.7 inches

Composition

Cincinnati and similar soils: 42 percent
Blocher and similar soils: 34 percent
Dissimilar inclusions: 24 percent
- Cincinnati, severely eroded, and Blocher, severely eroded, soils on shoulders and the upper part of backslopes
- Wakeland soils on toeslopes
- Bonnell soils on backslopes

CldC3—Cincinnati-Blocher silt loams, 6 to 12 percent slopes, severely eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Cincinnati

Parent material: Loess and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 6.8 inches

Blocher

Parent material: Thin loess, loamy materials, and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.7 inches

Composition

Cincinnati and similar soils: 42 percent
Blocher and similar soils: 34 percent
Dissimilar inclusions: 24 percent
- Cincinnati, moderately eroded, and Blocher, moderately eroded, soils in areas on the lower part of backslopes
- Wakeland soils on toeslopes
- Bonnell soils on backslopes

CleC5—Cincinnati-Blocher complex, 6 to 12 percent slopes, gullied

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes
Other features: Between 30 and 50 percent of this map unit is gullied. The gullied areas consist of a network of mostly U-shaped channels averaging 3 to 8 feet in depth.

Soil Properties and Qualities

Cincinnati

Parent material: Loess and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 0 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 6.1 inches

Blocher

Parent material: Thin loess, loamy materials, and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.6 inches

Composition

Cincinnati and similar soils: 45 percent
Blocher and similar soils: 30 percent
Dissimilar inclusions: 25 percent
- Cincinnati, moderately eroded, and Blocher, moderately eroded, soils on shoulders and backslopes between gullies
- Wakeland soils on toeslopes
- Bonnell soils on backslopes

ClfA—Cobbsfork silt loam, 0 to 1 percent slopes

Setting

Landform: Till plains
Position on the landform: Nearly level summits

Soil Properties and Qualities

Parent material: Loess and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Poorly drained
Depth to water table: 0 to 1 foot (perched)
Ponding: 0.5 foot
Available water capacity to a depth of 60 inches: About 9.8 inches

Composition

Cobbsfork and similar soils: 75 percent
Dissimilar inclusions: 25 percent
- Cobbsfork soils, undrained, on broad summits that are typically in woods
- Avonburg soils on slight rises

ComC—Coolville silt loam, 6 to 12 percent slopes

Setting

Landform: Hills underlain with shale or siltstone
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Thin loess and clayey residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 6.6 inches

Composition

Coolville and similar soils: 86 percent
Dissimilar inclusions: 14 percent
- Coolville soils, severely eroded, on shoulders and the upper part of backslopes
- Rarden soils on backslopes
- Stonehead and Weddel soils on summits
- Stendal soils on toeslopes

ComC3—Coolville silt loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Hills underlain with shale or siltstone
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Thin loess and clayey residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 6.2 inches

Composition

Coolville and similar soils: 72 percent
Dissimilar inclusions: 28 percent
- Coolville soils, moderately eroded, in areas on the lower part of backslopes
- Rarden soils on backslopes
- Weddel soils on summits
- Stendal soils on toeslopes

ConD—Coolville-Rarden complex, 12 to 18 percent slopes

Setting

Landform: Hills underlain with shale or siltstone
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Coolville

Parent material: Thin loess and clayey residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 6.5 inches

Rarden

Parent material: Clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)

Available water capacity to a depth of 60 inches: About 4.7 inches

Composition

Coolville and similar soils: 53 percent
Rarden and similar soils: 28 percent
Dissimilar inclusions: 19 percent
• Deam, Gnawbone, and Kurtz soils on backslopes
• Coolville soils that have slopes of 4 to 12 percent; on summits and shoulders

CwaAQ—Cuba silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 12.2 inches

Composition

Cuba and similar soils: 92 percent
Dissimilar inclusions: 8 percent
• Steff soils in drainageways
• Cuba soils, occasionally flooded, intermixed throughout the unit

DbrG—Deam silty clay loam, 20 to 55 percent slopes

Setting

Landform: Hills underlain with shale
Position on the landform: Backslopes

Soil Properties and Qualities

Parent material: Clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 4.3 inches

Composition

Deam and similar soils: 94 percent
Dissimilar inclusions: 6 percent
• Rarden soils on shoulders and summits
• Kurtz soils in areas on the upper part of backslopes

DddB2—Deputy silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Hills and strath terraces underlain with shale
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Loess and clayey residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 8.1 inches

Composition

Deputy and similar soils: 81 percent
Dissimilar inclusions: 19 percent
• A moderately deep, moderately well drained, slowly permeable, soil on summits and intermixed throughout the unit
• Jennings soils in areas on higher lying backslopes
• Trappist soils on shoulders

DddC2—Deputy silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills and strath terraces underlain with shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess and clayey residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 8.1 inches

Composition

Deputy and similar soils: 75 percent
Dissimilar inclusions: 25 percent
• Deputy soils, severely eroded, on shoulders and the upper part of backslopes
• Trappist soils in areas on the lower part of backslopes
• Blocher, hard bedrock substratum, and Jennings soils in areas on higher lying backslopes
• Deputy soils that have slopes of 2 to 6 percent; on summits

DddC3—Deputy silt loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Hills and strath terraces underlain with shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess and clayey residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 6.3 inches

Composition

Deputy and similar soils: 74 percent
Dissimilar inclusions: 26 percent
- Deputy, moderately eroded, and Trappist soils in areas on the lower part of backslopes
- Jennings and Blocher, hard bedrock substratum, soils in areas on higher lying backslopes

DfnA—Dubois silt loam, 0 to 2 percent slopes

Setting

Landform: Lake plains
Position on the landform: Flats

Soil Properties and Qualities

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 9.0 inches

Composition

Dubois and similar soils: 85 percent
Dissimilar inclusions: 15 percent
- Peoga soils in shallow, closed depressions
- Haubstadt soils on narrow, elongated flats

DfnB2—Dubois silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dissected lake plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 7.6 inches

Composition

Dubois and similar soils: 77 percent
Dissimilar inclusions: 23 percent
- Haubstadt soils on shoulders and backslopes and intermixed throughout the unit
- Wakeland soils on toeslopes
- Peoga soils on head slopes

DfoA—Dubois-Urban land complex, 0 to 2 percent slopes

Setting

Landform: Lake plains
Position on the landform: Flats

Soil Properties and Qualities

Dubois

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 9.0 inches

Urban land

- Urban land includes land areas that are covered by paved or graveled roads, parking lots and walkways, residential and commercial buildings, and cemetery structures.

Composition

Dubois and similar soils: 41 percent
Urban land: 34 percent
Dissimilar inclusions: 25 percent
- A very deep, somewhat poorly drained, loamy, soil that is formed from human activity intermixed throughout the unit and typically adjacent to commercial and residential areas and building sites
- Peoga soils on flats
- Haubstadt soils on narrow, elongated flats

EepA—Elkinsville silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 10.7 inches

Composition

Elkinsville and similar soils: 95 percent
Dissimilar inclusions: 5 percent
• Pekin soils on slightly lower lying flats

EepB—Elkinsville silt loam, 2 to 6 percent slopes

Setting

Landform: Dissected stream terraces
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 10.8 inches

Composition

Elkinsville and similar soils: 95 percent
Dissimilar inclusions: 5 percent
• Elkinsville soils that have slopes of 6 to 18 percent; on shoulders and backslopes
• Pekin soils intermixed throughout the unit

EepF—Elkinsville silt loam, 18 to 35 percent slopes

Setting

Landform: Dissected stream terraces
Position on the landform: Backslopes

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 10.7 inches

Composition

Elkinsville and similar soils: 95 percent
Dissimilar inclusions: 5 percent
• Deam soils in areas on the lower part of backslopes
• Haubstadt soils on shoulders and summits
• Stendal soils on toeslopes

GgfD—Gilwood-Wrays silt loams, 6 to 18 percent slopes

Setting

Landform: Hills underlain with siltstone
Position on the landform: Shoulders and the upper part of backslopes

Soil Properties and Qualities

Gilwood

Parent material: Silty residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 5.0 inches

Wrays

Parent material: Loess and silty residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 7.5 inches

Composition

Gilwood and similar soils: 39 percent
Wrays and similar soils: 39 percent
Dissimilar inclusions: 22 percent
• Spickert soils on shoulders and summits
• Brownstown soils on shoulders and the upper part of backslopes
• Gilwood, severely eroded, and Wrays, severely eroded, soils on shoulders and backslopes and intermixed throughout the unit

GmaG—Gnawbone-Kurtz silt loams, 20 to 60 percent slopes

Setting

Landform: Hills underlain with siltstone

Position on the landform: Backslopes

Soil Properties and Qualities

Gnawbone

Parent material: Silty residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 6.0 inches

Kurtz

Parent material: Silty residuum
Depth class: Deep (40 to 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 7.1 inches

Composition

Gnawbone and similar soils: 48 percent
Kurtz and similar soils: 32 percent
Dissimilar inclusions: 20 percent
- Coolville, Stonehead, and Wellrock soils on shoulders and summits
- Beanblossom soils on flood plains
- A very deep, well drained, soil formed in colluvium on footslopes

HccA—Haubstadt silt loam, 0 to 2 percent slopes

Setting

Landform: Lake plains
Position on the landform: Flats

Soil Properties and Qualities

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.5 inches

Composition

Haubstadt and similar soils: 90 percent
Dissimilar inclusions: 10 percent
- Dubois soils in shallow depressions

HccB2—Haubstadt silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dissected lake plains
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.4 inches

Composition

Haubstadt and similar soils: 84 percent
Dissimilar inclusions: 16 percent
- Dubois soils on head slopes
- Wakeland soils on toeslopes
- Haubstadt soils that have slopes of 6 to 12 percent; on shoulders and backslopes

HcdC2—Haubstadt-Shircliff silt loams, 6 to 15 percent slopes, eroded

Setting

Landform: Dissected lake plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Haubstadt

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.0 inches

Shircliff

Parent material: Thin loess and calcareous, fine-textured lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)

Available water capacity to a depth of 60 inches: About 10.1 inches

Composition

Haubstadt and similar soils: 55 percent
Shircliff and similar soils: 23 percent
Dissimilar inclusions: 22 percent
• Haubstadt, severely eroded, and Shircliff, severely eroded, soils on shoulders and the upper part of backslopes
• A very deep, well drained, soil on backslopes
• Wakeland soils on toeslopes

HceC3—Haubstadt-Shircliff complex, 6 to 15 percent slopes, severely eroded

Setting

Landform: Dissected lake plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Haubstadt

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.0 foot to 1.5 feet (perched)
Available water capacity to a depth of 60 inches: About 6.5 inches

Shircliff

Parent material: Thin loess and calcareous, fine-textured lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 9.9 inches

Composition

Haubstadt and similar soils: 55 percent
Shircliff and similar soils: 23 percent
Dissimilar inclusions: 22 percent
• Haubstadt, moderately eroded, and Shircliff, moderately eroded, soils in areas on the lower part of backslopes
• A very deep, well drained, soil on backslopes
• Wakeland soils on toeslopes

HcfB—Haubstadt-Urban land complex, 2 to 6 percent slopes

Setting

Landform: Dissected lake plains
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Haubstadt

Parent material: Loess and a paleosol in loamy lacustrine sediments
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.4 inches

Urban land

• Urban land includes land areas that are covered by paved or graveled road, parking lots and walk ways, residential and commercial buildings, and cemetery structures.

Composition

Haubstadt and similar soils: 46 percent
Urban land: 30 percent
Dissimilar inclusions: 24 percent
• A very deep, moderately well drained, loamy, soil that is formed from human activity intermixed throughout the unit and typically adjacent to commercial and residential areas and building sites
• Dubois soils on shoulders and summits
• Wakeland soils on toeslopes
• Haubstadt soils that have slopes of 6 to 12 percent; on backslopes

HcgAH—Haymond silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Natural levees and flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)

Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 12.6 inches

Composition

Haymond and similar soils: 85 percent
Dissimilar inclusions: 15 percent
• Wirt soils on natural levees and intermixed throughout the unit
• Wilbur soils in drainageways

HcgAQ—Haymond silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 12.8 inches

Composition

Haymond and similar soils: 77 percent
Dissimilar inclusions: 23 percent
• Wirt soils on natural levees and intermixed throughout the unit
• Steff soils on higher lying flood-plain steps
• Haymond soils, occasionally flooded, intermixed throughout the unit

HcgAW—Haymond silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains (fig. 2)
Position on the landform: Natural levees and flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 12.6 inches

Composition

Haymond and similar soils: 82 percent
Dissimilar inclusions: 18 percent
• Wirt soils on natural levees and intermixed throughout the unit
• Wilbur soils in drainageways
• Haymond soils, frequently flooded, intermixed throughout the unit

HeeG—Hickory loam, 25 to 50 percent slopes

Setting

Landform: Dissected till plains
Position on the landform: Backslopes

Soil Properties and Qualities

Parent material: Till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 9.6 inches

Composition

Hickory and similar soils: 87 percent
Dissimilar inclusions: 13 percent
• Cincinnati soils on shoulders and summits
• Bonnell soils on shoulders
• Holton soils on flood plains
• Jessietown and Rohan soils in areas on the lower part of backslopes

HerE—Hickory-Bonnell complex, 12 to 25 percent slopes

Setting

Landform: Dissected till plains
Position on the landform: Backslopes

Soil Properties and Qualities

Hickory

Parent material: Till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 9.8 inches

Bonnell

Parent material: 0 to 18 inches of loess or loamy materials and till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 8.6 inches

Figure 2.—Tobacco in an area of Haymond silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration. This soil is generally well suited for growing tobacco, but occasional periods of flooding can occur during the growing season and damage the crop.

Composition

Hickory and similar soils: 47 percent
Bonnell and similar soils: 39 percent
Dissimilar inclusions: 14 percent
• Blocher and Cincinnati soils on shoulders and summits
• Holton soils on flood plains
• Jessietown and Rohan soils in areas on the lower part of backslopes

HleAW—Holton silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Loamy alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 10.9 inches

Composition

Holton and similar soils: 85 percent
Dissimilar inclusions: 15 percent
• Oldenburg soils on higher lying flood-plain steps
• A very deep, poorly drained, soil in backswamps and drainageways
• Holton soils, frequently flooded, intermixed throughout the unit

JaeB2—Jennings silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dissected till plains
Position on the landform: Summits, shoulders, and backslopes

Soil Properties and Qualities

Parent material: Loess, a paleosol in till, and residuum from black shale (fig. 3)
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 7.2 inches

Composition

Jennings and similar soils: 80 percent
Dissimilar inclusions: 20 percent
• Deputy soils in areas on the lower part of backslopes
• Cincinnati soils on shoulders and summits
• A very deep, somewhat poorly drained, soil on toeslopes

JafC2—Jennings-Blocher hard bedrock substratum, silt loams, 6 to 12 percent slopes, eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Jennings

Parent material: Loess, a paleosol in till, and residuum from black shale (fig. 3)
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 7.2 inches

Blocher, hard bedrock

Parent material: Thin loess, loamy materials, and a paleosol in till over black shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 9.5 inches

Composition

Jennings and similar soils: 45 percent
Blocher, hard bedrock, and similar soils: 30 percent
Dissimilar inclusions: 25 percent
• Blocher, hard bedrock substratum, severely eroded, and Jennings, severely eroded, soils on shoulders and the upper part of backslopes
• Deputy soils on backslopes and intermixed throughout the unit
• Wakeland soils on toeslopes

JafC3—Jennings-Blocher hard bedrock substratum, silt loams, 6 to 12 percent slopes, severely eroded

Setting

Landform: Dissected till plains
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Jennings

Parent material: Loess, a paleosol in till, and residuum from black shale (fig. 3)
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 5.9 inches

Blocher, hard bedrock

Parent material: Thin loess, loamy materials, and a paleosol in till over black shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.9 inches

Composition

Jennings and similar soils: 45 percent
Blocher, hard bedrock, and similar soils: 30 percent
Dissimilar inclusions: 25 percent
• Blocher, hard bedrock substratum, moderately eroded, and Jennings, moderately eroded, soils in areas on the lower part of backslopes
• Deputy soils on backslopes and intermixed throughout the unit
• Wakeland soils on toeslopes

Figure 3.—Jennings soils formed in thin loess and the underlying till and residuum that is overlying the fractured Black Shale bedrock (New Albany Formation).

MhyA—Medora silt loam, 0 to 2 percent slopes

Setting

Landform: Eskers and crevasse fillings
Position on the landform: Summits

Soil Properties and Qualities

Parent material: Thin loess, loamy material, and a paleosol in outwash
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 7.5 inches

Composition

Medora and similar soils: 85 percent
Dissimilar inclusions: 15 percent

- A very deep, moderately permeable, well drained, soil on summits and intermixed throughout the unit

MhyB2—Medora silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Eskers and crevasse fillings
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Thin loess, loamy material, and a paleosol in outwash
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 6.7 inches

Composition

Medora and similar soils: 88 percent
Dissimilar inclusions: 12 percent
• A very deep, moderately permeable, well drained, soil intermixed throughout the unit
• Medora soils that have slopes of 6 to 12 percent; on shoulders and backslopes

MhyC2—Medora silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Eskers and crevasse fillings
Position on the landform: Thin loess, loamy material, and a paleosol in outwash

Soil Properties and Qualities

Parent material: Thin loess, loamy material, and a paleosol in outwash
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 6.7 inches

Composition

Medora and similar soils: 73 percent
Dissimilar inclusions: 27 percent
• Medora soils, severely eroded, on shoulders and the upper part of backslopes
• A very deep, moderately permeable, well drained, soil on shoulders and backslopes and intermixed throughout the unit
• Medora soils that have slopes of 2 to 6 percent; on summits

MhyC3—Medora silt loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Eskers and crevasse fillings
Position on the landform: Thin loess, loamy material, and a paleosol in outwash

Soil Properties and Qualities

Parent material: Thin loess, loamy material, and a paleosol in outwash
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.0 foot to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 6.1 inches

Composition

Medora and similar soils: 75 percent
Dissimilar inclusions: 25 percent
• Medora soils, moderately eroded, in areas on the lower part of backslopes
• A very deep, moderately permeable, well drained, soil on shoulders and backslopes and intermixed throughout the unit

NaaA—Nabb silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on the landform: Nearly level summits

Soil Properties and Qualities

Parent material: Loess and a paleosol in till
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.5 inches

Composition

Nabb and similar soils: 85 percent
Dissimilar inclusions: 15 percent
• Avonburg soils in shallow depressions

NaaB2—Nabb silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on the landform: Summits, shoulders, and backslopes

Soil Properties and Qualities

Parent material: Loess and a paleosol in till (fig. 4)
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.0 inches

Composition

Nabb and similar soils: 88 percent
Dissimilar inclusions: 12 percent
• Avonburg soils on head slopes
• Wakeland soils on toeslopes

NamF—Negley silt loam, 18 to 35 percent slopes

Setting

Landform: Esker and crevasse fillings
Position on the landform: Backslopes

Soil Properties and Qualities

Parent material: 0 to 20 inches of loess and outwash
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 6.8 inches

Composition

Negley and similar soils: 92 percent
Dissimilar inclusions: 8 percent
• Hickory and Negley, severely eroded, soils on backslopes and intermixed throughout the unit

NanD3—Negley clay loam, 12 to 22 percent slopes, severely eroded

Setting

Landform: Esker and crevasse fillings
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: 0 to 20 inches of loess and outwash
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 6.1 inches

Composition

Negley and similar soils: 80 percent
Dissimilar inclusions: 20 percent
• Negley soils, moderately eroded, on the lower part of backslopes

Figure 4.—Mixed deciduous trees are growing on an area of Nabb silt loam, 2 to 6 percent slopes, eroded. These soils are generally well suited for growing many types of trees. The fragipan layer in the Nabb soils will restrict downward root growth of several tree species.

• Hickory soils on shoulders and backslopes and intermixed throughout the unit

OfbAW—Oldenburg loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Loamy alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 9.5 inches

Composition

Oldenburg and similar soils: 85 percent
Dissimilar inclusions: 15 percent
• Holton soils in drainageways
• Oldenburg soils, frequently flooded, intermixed throughout the unit

PcrA—Pekin silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.2 inches

Composition

Pekin and similar soils: 90 percent
Dissimilar inclusions: 10 percent
• Bartle soils in shallow depressions

PcrB2—Pekin silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dissected stream terraces
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.2 inches

Composition

Pekin and similar soils: 90 percent
Dissimilar inclusions: 10 percent
• Bartle soils on head slopes
• Stendal soils on toeslopes

PcrC2—Pekin silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Dissected stream terraces
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.1 inches

Composition

Pekin and similar soils: 76 percent
Dissimilar inclusions: 24 percent
• Pekin soils, severely eroded, on shoulders and the upper part of backslopes
• Pekin soils that have slopes of 12 to 18 percent; on backslopes
• Stendal soils on toeslopes

PcrC3—Pekin silt loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Dissected stream terraces
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Thin loess and the underlying alluvium or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 6.7 inches

Composition

Pekin and similar soils: 76 percent
Dissimilar inclusions: 24 percent
• Pekin soils, moderately eroded, on the lower part of backslopes
• Pekin soils that have slopes of 12 to 18 percent; on backslopes
• Stendal soils on toeslopes

PhaA—Peoga silt loam, 0 to 1 percent slopes

Setting

Landform: Lake plains and stream terraces
Position on the landform: Flats

Soil Properties and Qualities

Parent material: Loess and a paleosol in loamy lacustrine sediments or alluvium
Depth class: Very deep (more than 80 inches)
Drainage class: Poorly drained
Depth to water table: 0 to 1 foot (perched)
Ponding: 0.5 foot
Available water capacity to a depth of 60 inches: About 9.7 inches

Composition

Peoga and similar soils: 93 percent
Dissimilar inclusions: 7 percent
• Dubois soils on slight rises on lake plains
• Bartle soils on slight rises on stream terraces

PlpAH—Piopolis silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Backswamps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Depth to water table: 0 to 1 foot (apparent)
Ponding: 1 foot
Available water capacity to a depth of 60 inches: About 11.7 inches

Composition

Piopolis and similar soils: 97 percent
Dissimilar inclusions: 3 percent
• Stendal soils on higher lying flood-plain steps

Pml—Pits, quarry

• This map unit consists of areas where the surface soil has been removed and limestone or black shale bedrock has been extracted for construction material. Most of the area is the actual pit, and some of the area is piles of broken rock or mixed rock and soil material.

Composition

Pits, quarries: 85 percent
Dissimilar inclusions: 15 percent
• Udorthents soils formed from human activity intermixed throughout the unit
• Ponds

RblC3—Rarden silty clay loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Hills underlain with shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Moderately well drained

Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 5.0 inches

Composition

Rarden and similar soils: 81 percent
Dissimilar inclusions: 19 percent
• Blocher, soft bedrock substratum, and Coolville and Weddel soils on shoulders and backslopes and intermixed throughout the unit

RblD3—Rarden silty clay loam, 12 to 18 percent slopes, severely eroded

Setting

Landform: Hills underlain with shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 4.2 inches

Composition

Rarden and similar soils: 78 percent
Dissimilar inclusions: 22 percent
• Rarden soils, moderately eroded, in areas on the lower part of backslopes
• Coolville soils on shoulders
• Deam soils on backslopes
• Blocher, soft bedrock substratum, soils on shoulders and backslopes and intermixed throughout the unit

RbmD5—Rarden silty clay, 6 to 18 percent slopes, gullied

Setting

Landform: Hills underlain with shale
Position on the landform: Shoulders and backslopes
Other features: Between 50 and 75 percent of this map unit is gullied. The gullied areas consist of a network of mostly U-shaped channels averaging 2 to 6 feet in depth.

Soil Properties and Qualities

Parent material: Clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Moderately well drained
Depth to water table: 1 to 2 feet (perched)
Available water capacity to a depth of 60 inches: About 3.0 inches

Composition

Rarden and similar soils: 74 percent
Dissimilar inclusions: 26 percent
• Rarden, moderately eroded, and Coolville soils on shoulders and backslopes between gullies
• Deam soils on backslopes

RptG—Rohan-Jessietown complex, 25 to 60 percent slopes, rocky

Setting

Landform: Hills underlain with black shale
Position on the landform: Backslopes

Soil Properties and Qualities

Rohan

Parent material: Loamy residuum
Depth class: Shallow (10 to 20 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 1.4 inches

Jessietown

Parent material: Thin silty material and loamy residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 4.7 inches

Composition

Rohan and similar soils: 45 percent
Jessietown and similar soils: 36 percent
Dissimilar inclusions: 19 percent
• Rock outcrop intermixed throughout the unit
• Hickory and Rohan, severely eroded, soils in areas on the upper part of backslopes
• Trappist soils on shoulders and backslopes and intermixed throughout the unit

SceA—Scottsburg silt loam, 0 to 2 percent slopes

Setting

Landform: Strath terraces underlain with black shale
Position on the landform: Nearly level summits

Soil Properties and Qualities

Parent material: Loess, silty pedisediment, and residuum
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 9.2 inches

Composition

Scottsburg and similar soils: 85 percent
Dissimilar inclusions: 15 percent
• A deep, moderately well drained, soil intermixed throughout the unit
• Whitcomb soils in shallow depressions

SceB2—Scottsburg silt loam, 2 to 4 percent slopes, eroded

Setting

Landform: Dissected strath terraces underlain with black shale
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Loess, silty pedisediment, and residuum
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 9.2 inches

Composition

Scottsburg and similar soils: 80 percent
Dissimilar inclusions: 20 percent
• A deep, moderately well drained, soil intermixed throughout the unit
• Trappist soils on backslopes
• Deputy soils on summits and intermixed throughout the unit

SoaB—Spickert silt loam, 2 to 6 percent slopes

Setting

Landform: Hills underlain with siltstone
Position on the landform: Summits and shoulders

Soil Properties and Qualities

Parent material: Loess and silty residuum
Depth class: Deep or very deep (50 to 72 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 7.4 inches

Composition

Spickert and similar soils: 95 percent
Dissimilar inclusions: 5 percent
• Wrays soils on shoulders and the upper part of backslopes

SoaC2—Spickert silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills underlain with siltstone
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess and silty residuum
Depth class: Deep or very deep (50 to 72 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 7.4 inches

Composition

Spickert and similar soils: 77 percent
Dissimilar inclusions: 23 percent
• Spickert, severely eroded, and Gilwood and Wrays soils on shoulders and backslopes and intermixed throughout the unit
• Spickert soils that have slopes of 2 to 6 percent; on summits

StaAH-Steff silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 10.4 inches

Composition

Steff and similar soils: 88 percent
Dissimilar inclusions: 12 percent
• Stendal soils in drainageways
• Cuba soils on natural levees

StaAQ—Steff silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 10.3 inches

Composition

Steff and similar soils: 86 percent
Dissimilar inclusions: 14 percent
• Stendal soils in drainageways
• Cuba soils on natural levees
• Steff soils, occasionally flooded, intermixed throughout the unit

StaAW—Steff silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 11.0 inches

Composition

Steff and similar soils: 86 percent
Dissimilar inclusions: 14 percent
• Stendal soils in drainageways
• Cuba soils on natural levees
• Steff soils, frequently flooded, intermixed throughout the unit

StdAH—Stendal silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.8 inches

Composition

Stendal and similar soils: 89 percent
Dissimilar inclusions: 11 percent
• Bonnie and Piopolis soils in backswamps and drainageways
• Steff soils on higher lying flood-plain steps

StdAQ—Stendal silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.8 inches

Composition

Stendal and similar soils: 88 percent
Dissimilar inclusions: 12 percent
• Bonnie soils in backswamps and drainageways
• Steff soils on higher lying flood-plain steps
• Stendal soils, occasionally flooded, in drainageways

StdAW—Stendal silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains (fig. 5)
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Acid, silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.8 inches

Composition

Stendal and similar soils: 87 percent
Dissimilar inclusions: 13 percent
- Bonnie and Piopolis soils in backswamps and drainageways
- Steff soils on higher lying flood-plain steps
- Stendal soils, frequently flooded, in drainageways

StmB2—Stonehead silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Hills underlain with shale or siltstone
Position on the landform: Summits

Soil Properties and Qualities

Parent material: Loess and clayey residuum
Depth class: Deep or very deep (44 to 75 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)

Figure 5.—An area of Stendal silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration, being used to produce no-till soybeans. These soils are well suited to no-till farming. The corn residue conserves moisture and reduces the hazard of crusting. Wetness and the hazard of flooding are management concerns of this soil.

Available water capacity to a depth of 60 inches: About 8.9 inches

Composition

Stonehead and similar soils: 94 percent
Dissimilar inclusions: 6 percent
• Weddel soils on summits and intermixed throughout the unit
• Stonehead soils that have slopes of 6 to 10 percent; on shoulders

StmC—Stonehead silt loam, 6 to 12 percent slopes

Setting

Landform: Hills underlain with shale or siltstone
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Loess and clayey residuum
Depth class: Deep or very deep (44 to 75 inches)
Drainage class: Moderately well drained
Depth to water table: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.9 inches

Composition

Stonehead and similar soils: 86 percent
Dissimilar inclusions: 14 percent
• Stonehead soils that have slopes of 2 to 6 percent; on summits
• Blocher, soft bedrock substratum, Coolville, severely eroded, and Weddel soils on shoulders and backslopes and intermixed throughout the unit
• Kurtz soils on backslopes

ThaC2—Trappist silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills and dissected strath terraces underlain with black shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Thin loess and clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 4.8 inches

Composition

Trappist and similar soils: 84 percent
Dissimilar inclusions: 16 percent
• Trappist soils, severely eroded, on shoulders and the upper part of backslopes
• Deputy soils on shoulders and backslopes and intermixed throughout the unit
• Scottsburg soils on shoulders and summits
• Rohan and Trappist soils that have slopes of 12 to 18 percent; on backslopes

ThbC3—Trappist silty clay loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Hills and dissected strath terraces underlain with black shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Parent material: Thin loess and clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 3.7 inches

Composition

Trappist and similar soils: 75 percent
Dissimilar inclusions: 25 percent
• Trappist soils, moderately eroded, in areas on the lower part of backslopes
• Deputy soils on shoulders and backslopes and intermixed throughout the unit
• Scottsburg soils on shoulders and summits
• Rohan and Trappist soils that have slopes of 12 to 18 percent; on backslopes

ThbD5—Trappist silty clay loam, 6 to 18 percent slopes, gullied

Setting

Landform: Hills and dissected strath terraces underlain with black shale
Position on the landform: Shoulders and backslopes
Other features: Between 50 and 75 percent of this map unit is gullied. The gullied areas consist of a network of both U-shaped and V-shaped channels averaging 2 to 6 feet in depth.

Soil Properties and Qualities

Parent material: Thin loess and clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 2.3 inches

Composition

Trappist and similar soils: 73 percent
Dissimilar inclusions: 27 percent
• Deputy and Rohan soils on shoulders and backslopes and intermixed throughout the unit
• Trappist soils, moderately eroded, on shoulders and backslopes between gullies

ThcD3—Trappist-Rohan complex, 12 to 25 percent slopes, severely eroded

Setting

Landform: Hills and dissected strath terraces underlain with black shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Trappist

Parent material: Thin loess and clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 4.0 inches

Rohan

Parent material: Loamy residuum
Depth class: Shallow (10 to 20 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 1.0 inch

Composition

Trappist and similar soils: 44 percent
Rohan and similar soils: 29 percent
Dissimilar inclusions: 27 percent
• Rohan, moderately eroded, and Trappist, moderately eroded, soils in areas on the lower part of backslopes
• Trappist soils that have slopes of 6 to 12 percent; in areas on the lower part of backslopes
• Deputy soils that have slopes of 6 to 12 percent; on shoulders
• Stendal soils on toeslopes

ThdD—Trappist-Rohan silt loams, 12 to 25 percent slopes

Setting

Landform: Hills and dissected strath terraces underlain with black shale
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Trappist

Parent material: Thin loess and clayey residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 5.4 inches

Rohan

Parent material: Loamy residuum
Depth class: Shallow (10 to 20 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 1.4 inches

Composition

Trappist and similar soils: 49 percent
Rohan and similar soils: 33 percent
Dissimilar inclusions: 18 percent
• Deputy soils that have slopes of 6 to 12 percent; on shoulders
• Rohan, severely eroded, and Trappist, severely eroded, soils on shoulders and the upper part of backslopes
• Stendal soils on toeslopes

Uaa—Udorthents, cut and filled

• Because of the extreme variability of these soils, no typical soil series is representative. Generally, they consist of areas with mixed, loamy soil materials or a combination of mixed soil materials and refuse materials that have been created by human activity. Included are earthen dams, spillways, fill for highway interchanges, sanitary landfills, and other areas where various thicknesses of soil material have been removed and areas where various thicknesses of soil material have been placed.

Composition

Udorthents: 83 percent
Dissimilar inclusions: 17 percent
- Urban land intermixed throughout the unit
- Very deep, poorly drained and somewhat poorly drained, soils formed from human activity
- Rock outcrops exposed in excavated areas

W—Water

- This map unit consists of water bodies, such as ponds, lakes, and rivers, and includes a few areas of municipal sewage treatment plants and animal waste treatment facilities.

WaaAH—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.9 inches

Composition

Wakeland and similar soils: 85 percent
Dissimilar inclusions: 15 percent
- A very deep, poorly drained, soil in backswamps and drainageways
- Wilbur soils on higher lying flood-plain steps

WaaAW—Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.9 inches

Composition

Wakeland and similar soils: 82 percent
Dissimilar inclusions: 18 percent
- A very deep, poorly drained, soil in backswamps and drainageways
- Wilbur soils on higher lying flood-plain steps
- Wakeland soils, frequently flooded, intermixed throughout the unit

WedB2—Weddel silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dissected till plains
Position on the landform: Summits

Soil Properties and Qualities

Parent material: Loess, a paleosol in till, and residuum from shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 3.0 feet (perched)
Available water capacity to a depth of 60 inches: About 7.9 inches

Composition

Weddel and similar soils: 95 percent
Dissimilar inclusions: 5 percent
- Coolville soils on summits and intermixed throughout the unit

WhcD—Wellrock-Gnawbone silt loams, 6 to 20 percent slopes

Setting

Landform: Hills underlain with siltstone
Position on the landform: Shoulders and backslopes

Soil Properties and Qualities

Wellrock

Parent material: Loess and silty residuum

Depth class: Deep (40 to 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 8.4 inches

Gnawbone

Parent material: Silty residuum
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 6.2 inches

Composition

Wellrock and similar soils: 50 percent
Gnawbone and similar soils: 41 percent
Dissimilar inclusions: 9 percent
- A deep or very deep, moderately well drained, very slowly permeable, soil on summits and intermixed throughout the unit
- Coolville soils that have slopes of 2 to 12 percent; on shoulders and summits

WnmA—Whitcomb silt loam, 0 to 2 percent slopes

Setting

Landform: Strath terraces underlain with black shale
Position on the landform: Nearly level summits

Soil Properties and Qualities

Parent material: Loess, silty pedisediment, and residuum
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Depth to water table: 0.5 foot to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 9.0 inches

Composition

Whitcomb and similar soils: 87 percent
Dissimilar inclusions: 13 percent
- Scottsburg soils on slight rises
- A very deep, poorly drained, soil in shallow, closed depressions

WokAH—Wilbur silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.9 inches

Composition

Wilbur and similar soils: 88 percent
Dissimilar inclusions: 12 percent
- Wakeland soils in drainageways
- Haymond soils on natural levees

WokAW—Wilbur silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Flood-plain steps

Soil Properties and Qualities

Parent material: Silty alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Depth to water table: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 12.9 inches

Composition

Wilbur and similar soils: 83 percent
Dissimilar inclusions: 17 percent
- Wakeland soils in drainageways
- Wilbur soils, frequently flooded, intermixed throughout the unit
- Haymond soils on natural levees

WomAM—Wilhite silty clay loam, ponded, 0 to 1 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains (fig. 6)
Position on the landform: Backswamps

Soil Properties and Qualities

Parent material: Fine-textured alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Very poorly drained
Depth to water table: 0.0 to 0.5 foot (apparent)
Ponding: 1 foot

Available water capacity to a depth of 60 inches: About 8.0 inches

Composition

Wilhite and similar soils: 90 percent
Dissimilar inclusions: 10 percent
• Ponded water

WprAW—Wirt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration

Setting

Landform: Flood plains
Position on the landform: Natural levees and flood-plain steps

Soil Properties and Qualities

Parent material: Loamy alluvium
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 9.2 inches

Composition

Wirt and similar soils: 83 percent
Dissimilar inclusions: 17 percent
• Haymond and Wirt, frequently flooded, soils intermixed throughout the unit
• Oldenburg soils in drainageways

WpuAH—Wirt silt loam, 0 to 2 percent slopes, frequently flooded, brief duration

Setting

Landform: Flood plains
Position on the landform: Natural levees and flood-plain steps

Soil Properties and Qualities

Parent material: Loamy alluvium

Figure 6.—Cattails and several other hydrophytic plants are growing in an area of Wilhite silty clay loam, ponded, 0 to 1 percent slopes, frequently flooded, brief duration. This soil is ponded for most months of the year, and therefore is generally only suited as a habitat for wildlife.

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 9.2 inches

Composition

Wirt and similar soils: 88 percent
Dissimilar inclusions: 12 percent
• Haymond soils intermixed throughout the unit
• Oldenburg soils in drainageways

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Agronomy

This section provides information about the use and management of the soils in this survey area for agronomic purposes.

Crops and Pasture

Dave Fellows, district conservationist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is explained.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1991, about 41,809 acres in Scott County (about 34 percent of the total acreage) was used for grain crops, mainly corn, soybeans, and winter wheat, according to the Scott County Soil and Water Conservation District. About 10,000 acres was used for hay and pasture. About 8,915 acres was idle cropland used for conservation purposes.

The potential for increased production of food crops is low. A small percentage of the acreage that is currently used as woodland or pasture could be converted to cropland. In addition to the reserve productive capacity represented by this land, food production can also be increased considerably by extending the latest crop production technology to all of the cropland in the county. This soil survey can greatly facilitate the application of such technology.

The paragraphs that follow describe the major management concerns affecting crops and pasture in the survey area and the management practices that may be used successfully. These concerns are the hazard of water erosion, wetness, tilth, and fertility.

Water erosion is a major hazard on about 48 percent of the cropland and pasture in the county. It is a hazard in areas where the slope is more than about 2 percent.

Productivity is reduced as fertilizer, pesticides, herbicides, and organic matter are removed from the surface layer. The natural tilth of some soils, such as

Bonnell and Rarden soils, is reduced as part of the more clayey subsoil is incorporated into the surface layer. Seedbed preparation becomes more difficult, and seed germination is hindered. Loss of the surface layer is especially damaging to soils that have a fragipan in the subsoil or have bedrock within a depth of 60 inches. The root zone in these soils consists mainly of the part of the profile above the limiting layer. As the surface layer is lost, the thickness of the root zone and the available water capacity are reduced. Avonburg, Bartle, Bedford, Cincinnati, Dubois, Haubstadt, Jennings, Medora, Nabb, Pekin, and Spickert soils have a fragipan. Coolville, Deputy, Gilwood, Gnawbone, Rarden, Stonehead, Trappist, Wellrock, and Wrays soils have bedrock within a depth of 60 inches.

Erosion results in the sedimentation and pollution of ditches, lakes, and streams. Controlling erosion minimizes sedimentation and pollution and improves water quality for fish and wildlife, for municipal use, and for recreational use.

In previous years, some areas of the county were subject to water erosion to the extent that a network of deep, U-shaped or V-shaped channels formed in the soils. In these channels, called gullies, the entire surface layer was lost and much of the subsoil was removed. The map units that have a large percentage of these gullies have “gullied” as part of their map unit name. Bonnell-Hickory clay loams, 15 to 30 percent slopes, gullied, is an example. Almost all of the map units noted as gullied phases will need to be reshaped before they can be used for cropland, pasture, or hayland.

Planting cover crops may help to control erosion on the more sloping soils. Cover crops are especially important after soybeans, corn for silage, or tobacco is grown. Tillage methods that leave crop residue on 50 or more percent of the surface can protect most of the sloping soils from excessive erosion during winter and early spring.

A conservation tillage system helps to hold soil losses to acceptable levels on most of the sloping soils. If row crops are grown year after year on sloping soils, soil losses generally are high unless a conservation tillage system is applied.

No-till and strip-till cropping systems are effective in minimizing soil loss on soils used for corn or soybeans (fig. 7). These conservation tillage systems can be adapted to many of the soils in the county that are susceptible to erosion. When no-till and strip-till systems are used in areas that have a thick vegetative cover or protective amounts of crop residue on the surface, soil moisture evaporates at a slower rate and the weed population is greatly reduced. Blocher, Cincinnati, Deputy, Haubstadt, Jennings, Medora, Nabb, Pekin, Scottsburg, Trappist, and Weddel soils are examples of sloping soils that are suitable for no-till and strip-till.

Contour farming is effective in controlling erosion in several areas of the county. In areas where slopes are short and irregular, this practice may be difficult to manage. Other types of conservation measures may be more suitable.

Water- and sediment-control basins are effective in reducing the rate of runoff in drainageways. They are most effective where subsurface tile can be installed as outlets and on soils that have slopes of about 8 percent or less. Blocher, Cincinnati, Deputy, Haubstadt, Jennings, Medora, Nabb, and Weddel soils are examples.

Grassed waterways are needed to protect the channels that drain a watershed. Subsurface drains are needed in areas where wetness or seepage is a problem in a waterway.

Grade-stabilization structures are needed in many areas where water in one drainageway falls into a more sloping drainageway. These structures stabilize the drainageways and minimize gully erosion.

Information about the type and design of erosion-control practices that are best suited to each kind of soil in the county is available at the local office of the Natural Resources Conservation Service.

Wetness is the major management concern on about 26 percent of the cropland and pasture in the county. On most of the naturally wet, poorly drained or very poorly drained Bonnie, Cobbsfork, Peoga, Piopolis, and Wilhite soils, production of the crops commonly grown in the county is generally not practical in many years unless a drainage system is installed. Also, in undrained areas of the somewhat poorly drained Avonburg, Bartle, Dubois, Holton, Stendal, Wakeland, and Whitcomb soils, wetness significantly damages crops in many years.

Various land use regulations of Federal, State, and local governments may impose special restrictions on the use of soils. An example is the protection of wetlands. Statements made in this section about wetness are intended to help the land user reduce the effects of wetness. The landowner or user has the responsibility of identifying and complying with existing laws and regulations.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface and subsurface drains is needed on some soils that are intensively row cropped. Subsurface drains should be more closely spaced in slowly permeable or very slowly permeable soils than in more permeable soils. Filtering material is generally needed in

Figure 7.—Typical landform of an area of gently sloping Scottsburg and Nabb soils and strongly sloping Jennings soils. These soils are being used to grow corn and are well suited to this use. Erosion is the main hazard.

subsurface drains in soils that have minimum grades and a high content of silt. Examples of these soils are Bonnie, Piopolis, Stendal, and Wakeland soils. Finding adequate outlets for subsurface drainage systems is difficult in some areas of Bonnie, Piopolis, and Wilhite soils.

Further information about the design of drainage systems for each kind of soil is in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Soil tilth is an important factor affecting the preparation of a seedbed, the germination of seeds, and the infiltration of water into the soil. Soils that have good tilth are granular and porous. Many of the soils used for row crops in the county have a surface layer of silt loam that has a moderate to low content of organic matter. Where there is little or no crop residue, a hard surface crust forms after periods of intensive rainfall. The hard crust reduces the infiltration rate, increases the runoff rate, and inhibits plant emergence. Regular additions of crop residue, cover crops, manure, and other organic material improve soil structure and help to minimize crusting.

Piopolis and Wilhite and the severely eroded Blocher, soft bedrock substratum, Bonnell, Rarden, and Trappist soils have a moderately fine textured surface layer. Tilth is a problem in areas of these soils. If tilled when too wet, the surface layer becomes very cloddy when it dries and cannot be easily worked. As a result, preparing a good seedbed is very difficult. Fall tillage of these soils generally results in better tilth in the spring.

Many of the soils in the survey area have a silty or loamy surface layer that is easily compacted. Tilling or grazing when the soil is wet causes surface compaction, which restricts penetration by tillage equipment and plant roots and limits plant growth.

Soil fertility is affected mainly by reaction, by the content of plant nutrients, and by the content of organic matter. Most of the soils on uplands and terraces have low natural fertility. They typically are strongly acid or very strongly acid in nonlimed areas. Most of the soils on flood plains along the Muscatatuck River and Stucker Fork and their tributaries range from neutral to very strongly acid.

Most of the soils on flood plains along Hutto Creek, Ox Creek, Pigeon Roost Creek, Stucker Fork, Weddell Creek, and the lower end of the Muscatatuck River and Kimberlin Creek are strongly acid or very strongly acid. The soils along the upper part of Kimberlin Creek and the Muscatatuck River and Hog Creek, Newland Creek, Town Creek, Woods Creek, and West Fork of Fourteen Mile Creek typically range from neutral to moderately acid.

On soils that have a pH level below about 6.4, applications of ground limestone are needed to raise the pH level sufficiently for the best utilization of plant nutrients by cultivated crops, such as corn and soybeans, and thus for optimum yields. On soils that have a pH below about 6.4, ground limestone is needed for hay and pasture plants, such as alfalfa and red clover. The supply of available phosphorus and potassium is generally below the level needed for good plant growth in most of the soils in areas where fertilizer has been applied. On all soils, additions of lime and fertilizer should be based on the results of soil tests, the needs of the crop, and the desired level of yields. The Cooperative Extension Service can help in determining the kind and amount of fertilizer and/or lime to be applied.

The pasture plants commonly grown in the county are mixtures of tall fescue, orchardgrass, timothy, alfalfa, and red clover. Other pasture plants are bluegrass, ladino clover, redtop, alsike clover, lespedeza, and sweetclover. Most of the soils in the county are well suited to grasses, such as tall fescue, timothy, and orchardgrass, and to legumes, such as red clover, ladino clover, alfalfa, and lespedeza. Legumes grow poorly, however, in soils that are poorly drained or very poorly drained, such as Bonnie, Cobbsfork, Peoga, and Piopolis soils. The growth of most deep-rooted legumes, such as alfalfa and sweetclover, is significantly restricted in soils that have a fragipan, such as Avonburg, Cincinnati, Dubois, Haubstadt, Jennings, and Nabb soils.

Poorly drained and very poorly drained soils, such as Bonnie, Cobbsfork, Peoga, Piopolis, and Wilhite soils, are well suited to water-tolerant grasses. Well drained soils, such as Bonnell and Elkinsville soils, are well suited to deep-rooted legumes. The latest information on recommended grasses and legumes for each soil type can be obtained from local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

The field crops suited to the soils and climate in the county include those that are currently grown and some that are not commonly grown. Corn, soybeans, and wheat are the principal cultivated crops. Other cultivated crops grown are oats and rye. Alfalfa, aslike clover, redtop, red clover, fescue, and orchardgrass are common crops grown for hay and pasture. A few specialty crops are grown in the county, mainly popcorn, tomatoes, sweetcorn, and pumpkins. A small acreage is used for tobacco.

The latest information about growing cultivated crops, hay and pasture plants, and specialty crops can be obtained from local offices of the Cooperative Extension Service or the Natural Resources Conservation Service.

Cropland Limitations and Hazards

The crop management concerns affecting the use of the soils in the survey area are shown in table 5. The main concerns in managing cropland are controlling water erosion, soil wetness, and ponding; reducing surface crusting; improving poor tilth; limiting the effects of excessive and restricted permeability; and low available water capacity.

Generally, a combination of conservation practices is needed to control *water erosion*. Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to minimize soil loss.

Wetness is a limitation in some cropland areas, and *ponding* is a hazard in some areas. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, or a combination of these. Measures that maintain the drainage system are needed.

Practices that reduce surface *crusting* and improve *poor tilth* include incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage. Surface cloddiness can be minimized by avoiding tillage during periods when the soils are too wet.

Excessive permeability is a limitation that can cause deep leaching of nutrients and pesticides. Selecting appropriate chemicals and using split application methods reduce the hazard of ground-water contamination.

Restricted permeability is a limitation that can be minimized by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems.

Measures that conserve moisture are needed in areas where the soils have a *low available water capacity*. These measures primarily involve reducing the evaporation and runoff rates and increasing the water intake rate. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are flooding, limiting rooting depth, and restricted permeability.

Additional limitations and hazards are as follows:

Limited rooting depth.—Rooting depth and available moisture may be limited by bedrock within a depth of 40 inches, or the presence of a fragipan.

Flooding.—Winter-grown small grain crops can be damaged. Providing for good surface drainage to enable planting of late crops after floodwaters recede will help overcome the flooding concern. Water-tolerant species should be used in areas subject to flooding.

Following is an explanation of the criteria used to determine the limitations or hazards.

Crusting—The content of organic matter in the surface layer is less than 2 percent, the percent passing the number 200 sieve is greater than 50 percent, and the content of clay is less than or equal to 32 percent.

Limited rooting depth—Bedrock or a fragipan is within a depth of 40 inches.

Flooding—The soil is subject to occasional or frequent periods of flooding during the growing season.

Limited available water capacity—The weighted average of the available water capacity is equal to or more than 0.15 inch of soil within a depth of 60 inches.

Ponding—A water table is above the surface layer.

Poor tilth—The soil has 32 percent or more clay in the surface layer.

Low pH—The soil has a typical pH value that is equal to or less than 6.0 in the surface layer.

Restricted permeability—Permeability is less than 0.2 inch per hour in one or more layers within a depth of 40 inches.

Water erosion—The erodibility factor of the surface layer (K or Kw) multiplied by the slope is greater than 0.8, and the average slope is 3 percent or more.

Wetness—The soil has a water table within a depth of 1.5 feet during the growing season.

Erodibility factors (e.g., K or Kw) and wind erodibility groups are described under the heading “Physical Properties.”

Pasture Limitations and Hazards

Growing legumes, cool-season grasses, and warm-season grasses that are suited to the soils and the climate of the area helps to maintain a productive stand of pasture.

The management concerns affecting the use of the soils in the survey area for pasture are shown in table 6. The main management concerns affecting pasture are water erosion, low pH, equipment limitation, low fertility, and low available water capacity.

Water erosion reduces the productivity of pastureland. It also results in onsite and offsite sedimentation, causes water pollution by sedimentation, and increases the runoff of livestock manure and other added nutrients. Measures that are effective in controlling water erosion include establishing or renovating stands of legumes and grasses. Controlling erosion during seedbed preparation is a major concern. If the soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, farming on the contour, and using a system of conservation tillage that leaves a protective cover crop residue on the surface can help to minimize erosion.

Overgrazing or grazing when the soil is wet reduces the extent of plant cover and results in surface compaction and poor tilth, and thus it increases the susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition. The proper location of livestock watering facilities helps to prevent surface compaction or the formation of ruts by making it unnecessary for cattle to travel long distances up and down the steep slopes.

Low pH (soil reaction) inhibits the uptake of certain nutrients by the plants or accelerates the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of plants. Applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes.

In soils with low fertility, the average content of organic matter in the surface layer is less than 1 percent and the cation-exchange capacity is equal to or less than 7 milliequivalents per 100 grams of soil.

In areas where slopes are 15 percent or more, the operation of farm equipment may be restricted and become hazardous.

Low fertility levels affect the health and vigor of the plants and thus have direct impact on the quantity and quality of livestock produced. Additions of fertilizers and other organic material should be based on the results of soil tests, on the needs of specific plant species, and on the desired level of production.

Available water capacity is a limitation when it is a weighted average of less than 0.10 inch of water per inch of soil within a depth of 60 inches or when it is a weighted average of less than 3 inches in the root zone if the root zone is less than 60 inches thick. Available water capacity refers to the capacity of soils to hold water available for use by most plants. The quality and quantity of the pasture may be reduced for soils that have low available water, and inadequate for the maintenance of a healthy community of desired pasture species and, thus, the desired number of livestock. A poor quality pasture may increase the hazard of erosion and increase the runoff of pollutants. Planting drought-resistant species of grasses and legumes helps to establish cover vegetation. Irrigation may be needed.

Erodibility factors (e.g., K or Kf) and wind erodibility groups are described under the heading "Physical Properties."

Yields per Acre

The average yields per acre that can be expected for the principal crops under a high level of management are shown in table 7. In any given year, yields may be higher or lower than those indicated in the table. These differences are the result of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed and implemented. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide additional information about the management and productivity of the soils for those crops.

Pasture and Hayland Interpretations

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Pasture yield estimates are often provided in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 7.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and forestland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 4. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7. The local office of the Cooperative Extension Service or the Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class 8 are generally not suitable for crops, pasture, or forestland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in table 7.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

About 76,679 acres, or nearly 62 percent of the survey area, meets the criteria for prime farmland. Areas of this land are throughout the county.

The map units in the survey area that meet the criteria for prime farmland are listed in table 8. This list does not constitute a recommendation for a particular land use. On some soils included in the table, measures that overcome limitations are needed. Onsite evaluation is needed to determine whether or not a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition (fig. 8).

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree

Figure 8.—An embankment pond has been built in an area of Coolville-Rarden soils, 12 to 18 percent slopes. These soils are generally well suited for pond reservoir areas. The Christmas trees are being grown in an area of Blocher, soft bedrock substratum-Weddel silt loams, 6 to 12 percent slopes, eroded.

or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

Table 9 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Forestland

Assistance in establishing, improving, or managing forestland is available from foresters or natural resources specialists.

Forestland Management and Productivity

Information about the productivity and management of the forested map units in the survey area is given in table 10. This table can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Woodland Ordination System

Table 10 lists the *ordination symbol* (woodland suitability) for each soil. The ordination system is a nationwide uniform system of labeling soils or groups of soils that are similar in use and management. The primary factors evaluated in the woodland ordination system are productivity of the forest overstory tree species and the principal soil properties resulting in hazards and limitations that affect forest management. There are three parts of the ordination system: class, subclass, and group. The class and subclass are referred to as the ordination symbol.

Ordination Class Symbol

The first element of the ordination symbol is a number that denotes potential productivity in terms of cubic meters of wood per hectare per year for the indicator tree species. The larger the number, the greater the potential productivity. Potential productivity is based on site index and the corresponding culmination of mean annual increment. For example, the number 1 indicates a potential production of 1 cubic meter of wood per hectare per year (14.3 cubic feet per acre per year) and 10 indicates a potential production of 10 cubic meters of wood per hectare per year (143 cubic feet per acre per year).

Indicator species is a species that is common in the area and is generally, but not necessarily, the most productive on the soil. It is the species that determines the ordination class. It is the first species listed for a particular map unit in table 10. This table shows the productivity for all species where data have been collected.

Site index is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. This index applies to fully stocked, even-aged, unmanaged stands. The site indexes shown in table 10 are averages based on measurements made at sites that are representative of the soil series. When the site index and forestland productivity of different soils are compared, the values for the same tree species should be compared. The higher the site index number, the more productive the soil for that species. Site index values are used in conjunction with yield tables to determine average annual yields. Indirectly, they are used to determine the productivity class in the ordination class symbol.

Ordination Subclass Symbol

The second element of the ordination symbol, or subclass, is a capital letter that indicates certain soil or physiographic characteristics that contribute to important hazards or limitations to be considered in management. The subclasses are defined as follows:

Subclass X indicates that forestland use and management are limited by stones or rocks.

Subclass W indicates that forestland use and management are significantly limited by excess water, either seasonally or throughout the year. Restricted drainage, a high water table, or flooding can adversely affect either stand development or management.

Subclass T indicates that the root zone has toxic substances. Excessive alkalinity, acidity, sodium salts, or other toxic substances impede the development of desirable species.

Subclass D indicates that forestland use and management are limited by a restricted rooting depth. The rooting depth is restricted by hard bedrock, a hardpan, or other restrictive layers in the soil.

Subclass C indicates that forestland use and management are limited by the kind or amount of clay in the upper part of the soil.

Subclass S indicates that the soil is sandy, has a low available water capacity, and normally has a low content of available plant nutrients. The use of equipment is limited during dry periods.

Subclass F indicates that forestland use and management are limited by a high content of rock fragments that are larger than 2 millimeters and smaller than 10 inches. This subclass includes flaggy soils.

Subclass R indicates that forestland use and management are limited by excessive slope.

Subclass A indicates that no significant limitations affect forestland use and management.

Management Concerns

In table 10, the soils are rated for the erosion hazard, the equipment limitation, seedling mortality, the windthrow hazard, and plant competition.

The *erosion hazard* is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

The *equipment limitation* is *slight* if the use of equipment is not limited to a particular kind of equipment or time of year; *moderate* if there is a short seasonal limitation or a need for some modification in the management of equipment; and *severe* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings are for seedlings that are from a good planting stock and that are properly planted during a period of average rainfall. A rating of *slight* indicates that the expected mortality of the planted seedlings is less than 25 percent; *moderate,* 25 to 50 percent; and *severe,* more than 50 percent.

Windthrow hazard is *slight* if trees in wooded areas are not expected to be blown down by commonly occurring winds; *moderate* if some trees are blown down during periods of excessive soil wetness and strong winds; and *severe* if many trees are blown down during periods of excessive soil wetness and moderate or strong winds.

Plant competition is *slight* if there is little or no competition from other plants; *moderate* if plant competition is expected to hinder the development of a fully stocked stand of desirable trees; and *severe* if plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed for the control of undesirable plants.

Potential Productivity

In table 10, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *productivity index,* a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic meters per hectare per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The column *suggested trees to plant* lists trees that are suitable for commercial wood production and that are suited to the soils.

Recreation

The soils of the survey area are rated in table 11 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and can be easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these.

The information in table 11 can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in table 13 and interpretations for septic tank absorption fields in table 14.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

The interpretative ratings in this table help engineers, planners, and others to understand how soil properties influence recreational uses. Ratings for proposed uses are given in terms of limitations. Only the most restrictive features are listed. Other features may limit a specific recreational use.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

Elements of Wildlife Habitat

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are wheat, rye, oats, sorghum, and sunflower.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, bromegrass, timothy, orchardgrass, clover, bluegrass, alfalfa, trefoil, reed canarygrass, and crownvetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, ragweed, pokeweed, sheep sorrel, docks, crabgrass, and dandelion.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, wild cherry, sweetgum, willow, black walnut, apple, hawthorn, dogwood, hickory, hazelnut, blackberry, mayapple, elderberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are hawthorn, honeysuckle, American plum, redosier dogwood, chokecherry, serviceberry, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, hemlock, fir, yew, cedar, larch, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, pondweed, spikerush, wild millet, rushes, sedges, bulrushes, wild rice, arrowhead, waterplantain, pickerelweed, algae cordgrass, and cattail.

Shallow water areas have an average depth of less than 5 feet. They are useful as habitat for some wildlife species. Some are naturally wet areas. Others are created by dams, levees, or water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are muskrat marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

Kinds of Wildlife Habitat

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, and shrubs. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, dove, meadowlark, field sparrow, cottontail, woodchuck, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, thrushes, woodpeckers, owls, tree squirrels, porcupine, raccoon, and white-tailed deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas that support water-tolerant plants. Wildlife attracted to this habitat include ducks, geese, herons, bitterns, rails, kingfishers, muskrat, otter, mink, and beaver.

Edge habitat consists of the areas where major land uses or cover types converge. An example is the border between dense woodland and a field of no-till corn. Although not rated in the table, edge habitat is of primary importance to animals from the smallest songbirds to white-tailed deer. Most of the animals that inhabit open land or woodland also frequent edge habitat, and desirable edge areas are consistently used by 10 times as many animals as are the centers of large areas of woodland or cropland.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 2003) and in the “Soil Survey Manual” (Soil Survey Division, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in Owen County are specified in “Field Indicators of Hydric Soils in the United States” (USDA, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; USDA, 1996).

BodAH—Bonnie silt loam, 0 to 1 percent slopes, frequently flooded, brief duration
BodAW—Bonnie silt loam, 0 to 1 percent slopes, occasionally flooded, very brief duration
ClfA—Cobbsfork silt loam, 0 to 1 percent slopes
PhaA—Peoga silt loam, 0 to 1 percent slopes
PlpAH—Piopolis silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration
WomAM—Wilhite silty clay loam, ponded, 0 to 1 percent slopes, frequently flooded, brief duration

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions of the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 13 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading (fig. 9). Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity (fig. 10).

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 14 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. It also shows the suitability of the soils for use as a daily cover for landfill.

Soil properties are important in selecting sites for sanitary facilities and in identifying limiting soil properties and site features to be considered in

Figure 9.—Floodwaters cover this road that was built on Steff and Stendal soils. Building roads is a design concern for these soils and other flood plain soils that are subject to flooding.

Figure 10.—Damage from frost heave has occurred to this road constructed in an area of Jennings soils. These soils have a high potential for frost action.

planning, design, and installation. Soil limitation ratings of *slight, moderate,* or *severe* are given for septic tank absorption fields, sewage lagoons, and trench and area sanitary landfills. Soil suitability ratings of *good, fair,* and *poor* are given for daily cover for landfill.

A rating of *slight* or *good* indicates that the soils have no limitations or that the limitations can be easily overcome. Good performance and low maintenance can be expected. A rating of *moderate* or *fair* indicates that the limitations should be recognized but generally can be overcome by good management or special design. A rating of *severe* or *poor* indicates that overcoming the limitations is difficult or impractical. Increased maintenance may be required.

Septic tank absorption fields are areas in which subsurface systems of tile or perforated pipe distribute effluent from a septic tank into the natural soil. The centerline of the tile is assumed to be at a depth of 24 inches. Only the part of the soil between a depth of 24 and 60 inches is considered in making the ratings. The soil properties and site features considered are those that affect the absorption of the effluent, those that affect the construction and maintenance of the system, and those that may affect public health.

The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Individuals need to contact the Scott County Health Department for procedures and local septic codes to determine site feasibility for septic tank absorption fields.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted, relatively impervious soil material. Aerobic lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Relatively impervious soil material for the lagoon floor and sides is desirable to minimize seepage and contamination of local ground water.

Table 14 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and generally 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

A *trench sanitary landfill* is an area where solid waste is disposed of by placing refuse in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil that is excavated from the trench. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. Soil properties that influence the risk of pollution, the ease of excavation, trafficability, and revegetation are the major considerations in rating the soils.

An *area sanitary landfill* is an area where solid waste is disposed of by placing refuse in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil that is imported from a source away from the site. A final cover of soil at least 2 feet thick is placed over the completed landfill. Soil properties that influence trafficability, revegetation, and the risk of pollution are the main considerations in rating the soils for area sanitary landfills.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The suitability of a soil for use as cover is based on properties that affect workability and the ease of digging, moving, and spreading the material over the refuse daily during both wet and dry periods.

Soil texture, wetness, rock fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best daily cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources results in the conservation of energy and resources and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or the wastewater to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for manure- and food-processing waste, municipal sewage sludge, use of wastewater for irrigation, and treatment of wastewater by slow rate, overland flow, and rapid infiltration processes.

Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Construction Materials

Table 15 gives information about the soils as potential sources of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In the table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread. Many soils have layers of contrasting suitability within their profile. Table 15 provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have one or more of the following characteristics—a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15, only the probability of finding material in suitable quantity in or below the soil is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a *probable* source has a layer of clean sand or gravel or a layer of sand or gravel that has up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an *improbable* source. Fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils; loamy soils that have a relatively high content of clay; soils that have only 20 to 40 inches of suitable material; soils that have an appreciable amount of gravel, stones, or soluble salts; or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

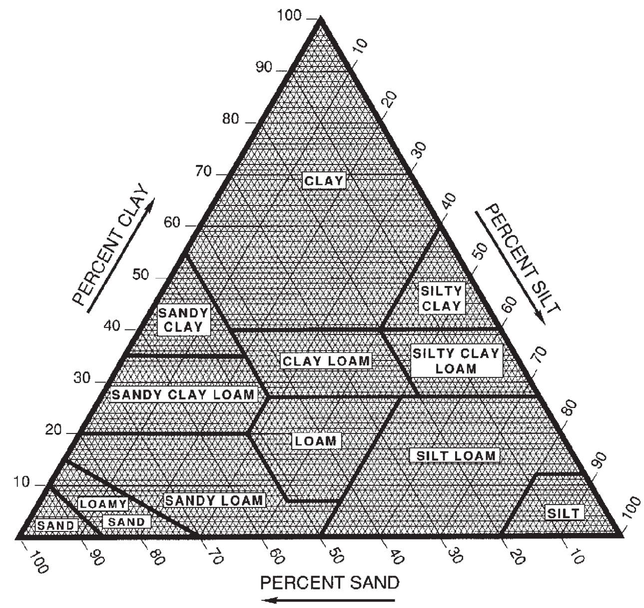

Figure 11.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 17 gives the engineering classifications and the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 11). “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 18 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 18, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, more than 6 percent; and *very high*, greater than 9 percent.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 18, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 19 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 20 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are depth to the seasonal high water table, the kind of water table, and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. “More than 6.0” indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. *Maximum ponding depth* refers to the depth of the water above the surface of the soil.

Soil Features

Table 21 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Bedrock is given if bedrock is within a depth of 80 inches. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

A *low* potential for frost action indicates that the soil is rarely susceptible to the formation of ice lenses; a *moderate* potential indicates that the soil is susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength; and a *high* potential indicates that the soil is highly susceptible to formation of ice lenses, resulting in frost heave and the subsequent loss of soil strength.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fragiaqualf (*Fragi*, meaning presence of a fragipan, plus *aqualf*, the suborder of the Alfisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. An example is Aeric Fragiaqualfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, active, mesic Aeric Fragiaqualfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 2003). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Avonburg Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Fragic Glossaqualfs

Typical Pedon for the Series

Avonburg silt loam, on a slope of 1 percent, in a cultivated field; 490 feet west and 685 feet south of the center of sec. 21, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 11 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR 7/3) dry; weak medium granular structure; friable; common very fine roots; common fine rounded black (10YR 2/1) iron and manganese oxide concretions throughout; very strongly acid; abrupt smooth boundary.

BE—11 to 21 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; few very fine roots; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; few fine rounded black (10YR 2/1) iron and manganese oxide concretions throughout; very strongly acid; clear wavy boundary.

Btg—21 to 37 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate coarse subangular blocky; firm; few very fine roots; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common distinct continuous gray (10YR 6/1) clay films on faces of peds; many faint continuous light gray (10YR 7/2) clay depletions on faces of peds; few fine rounded black (10YR 2/1) iron and manganese oxide concretions throughout; tongues 2 to 6 inches wide filled with light gray (10YR 7/2) silt loam, about 10 percent, by volume; very strongly acid; gradual wavy boundary.

2Btgx/Eg—37 to 52 inches; 50 percent light brownish gray (10YR 6/2) silt loam (Btgx); moderate coarse and very coarse prismatic structure parting to moderate coarse subangular blocky; very firm; brittle; common prominent continuous gray (10YR 6/1) clay films on vertical faces of peds; many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common faint continuous light gray (10YR 7/2) clay depletions on vertical faces of peds; 50 percent light gray (10YR 7/2) silt loam (Eg) as tongues 2 to 6 inches wide at the top that taper to 1 to 2 inches at the bottom, and have a concentration of illuviated grayish brown (10YR 5/2) silty clay loam in the lower part; weak medium and coarse subangular blocky structure; friable; few fine rounded black (10YR 2/1) iron and manganese oxide concretions throughout; 21 percent sand; 1 percent pebbles; extremely acid; gradual wavy boundary.

2Btx—52 to 83 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure parting to weak coarse subangular blocky; very firm; common prominent continuous gray (10YR 6/1) clay films on faces of peds and in pores; common coarse distinct light grayish brown (10YR 6/2) iron depletions in the matrix; few fine rounded black (10YR 2/1) iron and manganese oxide concretions throughout; 25 percent light gray (10YR 7/2) friable silt loam between peds; 24 percent sand; 1 percent pebbles; 75 percent brittle; extremely acid; diffuse wavy boundary.

3Btb—83 to 90 inches; strong brown (7.5YR 5/8) clay loam; moderate coarse subangular blocky structure; firm; many prominent continuous gray (10YR 6/1) clay films on faces of peds; many medium prominent light gray (10YR 7/1) iron depletions in the matrix; few fine irregular black (10YR 2/1) iron and manganese oxide concretions throughout; 4 percent pebbles; strongly acid.

Series Range in Characteristics

Depth to a root-restrictive layer: 20 to 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—4.5 to 7.3

BE horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 6
pH range—4.5 to 5.5

Bt or Btg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 to 6
Texture—silt loam or silty clay loam
pH range—3.6 to 5.0

2Btgx/Eg and 2Btx horizons:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 to 6
Texture—silt loam
Content of rock fragments—1 to 2 percent
pH range—3.6 to 5.5

3Btb horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 2 to 8
Texture—clay loam
Content of rock fragments—2 to 10 percent
pH range—4.5 to 7.3

Bartle Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Fragiaqualfs

Typical Pedon for the Series

Bartle silt loam, on a slope of 1 percent, in a cultivated field; 250 feet west and 1,620 feet south of the center of sec. 29, T. 3 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 11 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine and medium granular structure; friable; common very fine and fine roots; few fine distinct light gray (10YR 7/2) iron depletions in the matrix; common fine and medium rounded black (10YR 2/1) iron and manganese oxide concretions throughout; neutral; abrupt smooth boundary.

BE—11 to 17 inches; light yellowish brown (10YR 6/4) silt loam; weak medium subangular blocky structure; friable; few very fine roots; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; common fine prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron and manganese oxide concretions throughout; strongly acid; abrupt wavy boundary.

Bt—17 to 23 inches; brownish yellow (10YR 6/6) silt loam; moderate coarse subangular blocky structure; friable; few very fine roots; many prominent continuous light brownish gray (10YR 6/2) and common distinct continuous pale brown (10YR 6/3) clay films on faces of peds; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; common fine prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron and manganese oxide concretions throughout; extremely acid; clear wavy boundary.

Btg—23 to 30 inches; light brownish gray (10YR 6/2) silt loam; moderate medium and coarse prismatic structure; friable; few very fine roots; many distinct continuous light brownish gray (10YR 6/2) clay films on faces of peds; many medium distinct light yellowish brown (10YR 6/4) and common fine prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; many fine and medium rounded black (10YR 2/1) iron and manganese oxide concretions throughout; extremely acid; gradual wavy boundary.

Btx1—30 to 47 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure; firm; few very fine roots between peds; common fine vesicular and few fine tubular pores; many distinct continuous light brownish gray (10YR 6/2) clay films on vertical faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct light yellowish brown (10YR 6/4) and fine strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded black (10YR 2/1) iron and manganese oxide concretions throughout; 65 percent brittle; very strongly acid; gradual wavy boundary.

Btx2—47 to 55 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure; firm; few very fine roots between peds; few fine vesicular and tubular pores; common distinct discontinuous light brownish gray (10YR 6/2) and pale brown (10YR 6/3) clay films on vertical faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine and medium rounded very dark gray (N 3/0) iron and manganese oxide concretions throughout; 75 percent brittle; extremely acid; gradual wavy boundary.

BC—55 to 80 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure; firm; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; few fine strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common prominent discontinuous very dark gray (N 3/0) iron and manganese oxide stains in root channels; very strongly acid.

Series Range in Characteristics

Depth to a fragipan: 24 to 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—4.5 to 7.3

BE horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
pH range—3.6 to 6.0

Bt or Btg horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 2 to 6; redoximorphic depletions present
Texture—silt loam or silty clay loam
pH range—3.6 to 6.0

Btx horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 to 6
Texture—silt loam or silty clay loam
pH range—3.6 to 5.5

BC horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 8
Texture—silty clay loam, silt loam, or loam
pH range—4.5 to 7.3

Beanblossom Series

Taxonomic classification: Loamy-skeletal, mixed, active mesic, Fluventic Dystrudepts

Typical Pedon for the Series

Beanblossom channery silt loam (fig. 12), on a slope of 1 percent, in a walnut plantation; 2,175 feet west and 50 feet north of the southeast corner of sec. 4, T. 8 N., R. 2 E.; Brown County, Indiana.

Ap—0 to 7 inches; brown (10YR 4/3) channery silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine and medium roots; 27 percent very strongly cemented channers; strongly acid; abrupt smooth boundary.

Bw1—7 to 17 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable; common fine and medium roots; discontinuous brown (10YR 4/3) organic coatings on faces of peds; 45 percent very strongly cemented channers; strongly acid; clear smooth boundary.

Bw2—17 to 26 inches; yellowish brown (10YR 5/4) extremely channery loam; weak fine subangular blocky structure; friable; few fine roots; patchy brown (10YR 4/3) organic coatings of faces of peds; 80 percent very strongly cemented channers; strongly acid; clear smooth boundary.

C1—26 to 32 inches; yellowish brown (10YR 5/4) extremely channery loam; massive; friable; few coarse roots; 80 percent very strongly cemented channers; moderately acid; clear smooth boundary.

C2—32 to 44 inches; yellowish brown (10YR 5/4) extremely channery loam; common fine distinct yellowish brown (10YR 5/6) mottles; massive; friable; 77 percent very strongly cemented channers; moderately acid; clear smooth boundary.

C3—44 to 54 inches; dark yellowish brown (10YR 4/4) extremely channery loam; massive; friable; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine prominent light gray (10YR 7/2) iron depletions in the matrix; 75 percent very strongly cemented channers; slightly acid; abrupt smooth boundary.

2Cr—54 to 60 inches; fractured moderately cemented siltstone interbedded with fine-grained sandstone and shale.

Series Range in Characteristics

Depth to bedrock: 40 to 60 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam or channery silt loam
Content of rock fragments—0 to 30 percent
pH range—5.1 to 7.3

Bw horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—silt loam or loam or the channery to extremely channery analogs of these textures
Content of rock fragments—5 to 50 percent in the upper part; 35 to 80 percent in the lower part
pH range—5.1 to 7.3

C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—very channery, extremely channery, or very gravelly or the extremely gravelly analogs of loam or silt loam
Content of rock fragments—35 to 80 percent
pH range—5.6 to 6.5

Bedford Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon for the Series

Bedford silt loam, on a slope of 4 percent, in a cultivated field; 100 feet south and 1,180 feet west of the northeast corner of sec. 15, T. 3 N., R. 2 E.; Washington County, Indiana.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

Bt1—9 to 14 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; many fine roots; many fine pores; common distinct discontinuous dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—14 to 20 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; many fine roots; many distinct continuous yellowish brown (10YR 5/4) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt3—20 to 24 inches; yellowish brown (10YR 5/6) silty clay loam; common medium distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; firm; common fine roots; common fine pores; many distinct continuous yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Btx1—24 to 37 inches; yellowish brown (10YR 5/6) silty clay loam; moderate very coarse prismatic structure; very firm; few fine roots between peds; many distinct continuous yellowish brown (10YR 5/4) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; brittle; extremely acid; clear wavy boundary.

2Btx2—37 to 51 inches; yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure; firm; many distinct continuous yellowish brown (10YR 5/6) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 4 percent pebbles; brittle; extremely acid; clear wavy boundary.

3Btb1—51 to 67 inches; 60 percent yellowish red (5YR 5/6) and 25 percent strong brown (7.5YR 5/6) silty clay; common medium prominent light brownish gray (10YR 6/2) mottles; strong coarse angular blocky structure; very firm; many prominent reddish brown (5YR 4/4) clay films on faces of peds; 9 percent pebbles; strongly acid; clear wavy boundary.

3Btb2—67 to 80 inches; 60 percent yellowish red (5YR 5/6) and 25 percent strong brown (7.5YR 5/6) clay; common medium prominent light brownish gray (10YR 6/2) mottles; strong coarse angular blocky structure; very firm; many prominent continuous reddish brown (5YR 4/4) clay films on faces of peds; strongly acid.

Series Range in Characteristics

Thickness of the solum: More than 80 inches
Depth to a fragipan: 20 to 38 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam
pH range—3.6 to 6.0

Btx or 2Btx horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6; redoximorphic depletions present
Texture—silt loam or silty clay loam or the gravelly analogs of these textures
pH range—3.6 to 5.5

3Btb horizon:
Color—hue of 2.5YR, 5YR, or 7.5YR; value of 3 to 6; and chroma of 4 to 6
Texture—silty clay or clay or the gravelly analogs of these textures
Content of rock fragments—2 to 30 percent fragments (mainly chert)
pH range—3.6 to 5.5

Blocher Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Blocher silt loam, on a slope of 9 percent, in a hayfield; 390 feet east and 720 feet north of the southwest corner of sec. 3, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine and medium granular structure; friable; many very fine and fine roots; moderately acid; abrupt smooth boundary.

Bt1—6 to 17 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; many distinct continuous brown (7.5YR 5/4) clay films on faces of peds; common distinct discontinuous dark yellowish brown (10YR 4/4) organic coatings in root channels; few distinct continuous yellowish brown (10YR 5/4) silt coatings on faces of peds; very strongly acid; clear wavy boundary.

2Bt2—17 to 24 inches; strong brown (7.5YR 5/6) clay loam; strong fine and medium subangular blocky structure; firm; common very fine roots; common prominent continuous dark yellowish brown (10YR 4/4) and very few prominent continuous grayish brown (10YR 5/2) clay films on faces of peds; many distinct continuous pale brown (10YR 6/3) silt coatings on faces of peds; 1 percent pebbles; very strongly acid; gradual wavy boundary.

2Bt3—24 to 33 inches; yellowish brown (10YR 5/6) clay loam; strong fine and medium angular blocky structure; very firm; few very fine roots between peds; many distinct continuous strong brown (7.5YR 5/6) and common prominent continuous grayish brown (10YR 5/2) and few distinct discontinuous brown (7.5YR 4/4) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 8 percent pebbles; very strongly acid; clear wavy boundary.

2Bt4—33 to 44 inches; strong brown (7.5YR 5/6) clay; strong fine and medium angular blocky structure; very firm; few very fine roots between peds; many distinct continuous strong brown (7.5YR 4/6) and few prominent continuous grayish brown (10YR 5/2) clay films on faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent pebbles; strongly acid; gradual wavy boundary.

2Bt5—44 to 53 inches; yellowish brown (10YR 5/6) clay loam; moderate fine and medium subangular blocky structure; very firm; many distinct continuous dark yellowish brown (10YR 4/4) and few distinct discontinuous grayish brown (10YR 5/2) clay films on faces of peds; common medium irregular masses of iron and manganese oxides throughout; 3 percent pebbles; slightly acid; gradual wavy boundary.

2Bt6—53 to 62 inches; yellowish brown (10YR 5/6) clay loam; moderate fine and medium subangular blocky structure; firm; common distinct continuous dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium irregular masses of iron and manganese oxides throughout; 3 percent pebbles; neutral; gradual wavy boundary.

2BCt—62 to 76 inches; yellowish brown (10YR 5/6) clay loam; weak fine and medium subangular blocky structure; firm; very few distinct discontinuous dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium irregular masses of iron and manganese oxides throughout; 3 percent pebbles; neutral; gradual wavy boundary.

2C—76 to 80 inches; yellowish brown (10YR 5/4) loam (65 percent) with pockets of clay loam (35 percent); common coarse distinct strong brown (7.5YR 5/6) mottles; massive; friable; common medium and coarse irregular masses of iron and manganese oxides throughout; 3 percent pebbles; slightly alkaline.

Series Range in Characteristics

Thickness of the loess: 6 to 22 inches
Depth to bedrock: 60 to more than 80 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam, loam, or silty clay loam
pH range—4.5 to 5.5

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4 to 8
Texture—clay loam or clay
Content of rock fragments—3 to 10 percent gravel
pH range—4.5 to 5.5 in the upper part; 5.6 to 7.8 in the lower part

2C horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—loam or clay loam
Content of rock fragments—3 to 10 percent gravel
pH range—7.4 to 8.4

Bonnell Series

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Bonnell silt loam, on a convex east-facing slope of 25 percent, in a forested area; 700 feet north and 2,000 feet east of the southwest corner of sec. 14, T. 4 N., R. 3 W.; Ohio County, Indiana.

A—0 to 3 inches; very dark gray (10YR 3/1) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many coarse roots; very strongly acid; clear smooth boundary.

EB—3 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium granular structure; friable; many fine and coarse roots; very strongly acid; clear wavy boundary.

Bt1—6 to 9 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; friable; common fine and medium roots; few faint discontinuous yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid; clear wavy boundary.

2Bt2—9 to 26 inches; brown (7.5YR 4/4) clay; moderate medium angular blocky structure; firm; common fine and medium roots; many faint discontinuous brown (7.5YR 4/4) clay films on faces of peds; very strongly acid; clear wavy boundary.

2Bt3—26 to 36 inches; dark yellowish brown (10YR 4/4) clay; moderate medium subangular and angular blocky structure; firm; common fine and medium roots; many distinct discontinuous brown (7.5YR 4/4) clay films on faces of peds; few fine black (10YR 2/1) iron and manganese oxide concretions throughout; 4 percent pebbles; very strongly acid; clear wavy boundary.

2Bt4—36 to 44 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; many distinct continuous dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine black (10YR 2/1) iron and manganese oxide concretions throughout; 3 percent pebbles; very strongly acid; clear wavy boundary.

2Bt5—44 to 60 inches; dark yellowish brown (10YR 4/4) clay loam; weak coarse subangular blocky structure; firm; few fine and medium roots; common faint discontinuous dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine black (10YR 2/1) iron and manganese oxide concretions throughout; 3 percent pebbles; strongly acid in the upper part and slightly acid in the lower part; gradual wavy boundary.

2BCt—60 to 70 inches; brown (10YR 5/3) clay loam; weak coarse subangular blocky structure; firm; few distinct patchy dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine black (10YR 2/1) iron and manganese oxide concretions throughout; 5 percent pebbles; strongly effervescent; slightly alkaline; gradual wavy boundary.

2C—70 to 80 inches; brown (10YR 5/3) clay loam; massive; firm; 5 percent pebbles; strongly effervescent; moderately alkaline.

Series Range in Characteristics

A horizon:

Color—hue of 10YR, value of 2 to 4, and chroma of 1 or 2
Texture—silt loam
pH range—4.5 to 5.5

Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 6
Texture—clay loam
pH range—4.5 to 7.3

EB or BE horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loam or silt loam
pH range—4.5 to 5.5

Bt horizon:

Color—hue of 10YR, value of 5, and chroma of 4 to 6
Texture—loam, silt loam, or silty clay loam
pH range—4.5 to 5.5

2Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 8
Texture—clay loam or clay
Content of rock fragments—3 to 5 percent pebbles
pH range—4.5 to 5.5 in the upper part; 5.6 to 8.4 in the lower part

2BCt horizon:

Color—hue of 10YR, value of 5, and chroma of 3 to 6
Texture—clay loam or loam
Content of rock fragments—3 to 8 percent pebbles
pH range—6.1 to 8.4

2C horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
Texture—loam or clay loam
Content of rock fragments—3 to 8 percent pebbles
pH range—7.4 to 8.4

Bonnie Series

Taxonomic classification: Fine-silty, mixed, active, acid, mesic Typic Fluvaquents

Typical Pedon for the MLRA

Bonnie silt loam, on a slope of 0.5 percent, in a cultivated field; 1,160 feet west and 1,385 feet north of the center of sec. 9, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 9 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium granular structure; friable; common very fine roots; common fine distinct light brownish gray (10YR 6/2) iron depletions throughout; few fine rounded iron and manganese oxide concretions throughout; slightly acid; abrupt smooth boundary.

Cg1—9 to 20 inches; light brownish gray (10YR 6/2) silt loam; weak coarse platy structure; friable; few very fine roots; common medium faint pale brown (10YR 6/3) iron depletions in the matrix; common prominent yellowish red (5YR 4/6) iron stains lining pores and root channels; few fine rounded iron and manganese oxide concretions; common fine irregular iron nodules; slightly acid; gradual wavy boundary.

Cg2—20 to 31 inches; light gray (10YR 7/2) silt loam; massive; friable; few very fine roots; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation and few distinct pale brown (10YR 6/3) iron depletions in the matrix; few prominent yellowish red (5YR 4/6) iron stains lining pores and root channels; few fine rounded iron and manganese oxide concretions throughout; few fine irregular iron nodules; strongly acid; gradual wavy boundary.

Cg3—31 to 47 inches; gray (10YR 6/1) silt loam; massive; friable; few medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common prominent yellowish red (5YR 4/6) iron stains lining pores and root channels; few medium irregular iron and manganese oxide concretions throughout; common fine irregular iron nodules; strongly acid; gradual wavy boundary.

Cg4—47 to 60 inches; light gray (10YR 7/1) silt loam; massive; friable; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common prominent yellowish red (5YR 5/8) iron stains lining pores; common fine irregular iron nodules; strongly acid.

MLRA Range in Characteristics

A or Ap horizon:

Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 3

pH range—4.5 to 7.3

Cg horizon:

Color—hue of 10YR, 2.5Y, or N; value of 5 to 7; and chroma of 0 to 2

Texture—silt loam; includes silty clay loam below a depth of 40 inches

pH range—4.5 to 5.5 between depths of 20 to 40 inches; 4.5 to 6.5 above a depth of 20 inches and below a depth of 40 inches

Brownstown Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon for the Series

Brownstown silt loam, on a convex southeast-facing slope of 48 percent, in a forest; 500 feet west and 1,550 feet south of the northeast corner of sec. 28, T. 2 N., R. 6 E.; Scott County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.

E/A—1 to 6 inches; 90 percent (E) light yellowish brown (10YR 6/4) and 10 percent (A) dark grayish brown (10YR 4/2) silt loam, very pale brown (10YR 8/4) and light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many medium, fine, and very fine roots; 5 percent siltstone channers; very strongly acid; clear wavy boundary.

Bw—6 to 18 inches; brownish yellow (10YR 6/6) channery silt loam; weak medium subangular blocky structure; friable; few very fine and fine and common medium and coarse roots; 20 percent channers; very strongly acid; gradual wavy boundary.

CB—18 to 36 inches; yellowish brown (10YR 5/4) extremely channery silt loam; weak fine subangular blocky structure; friable; few very fine, fine, and medium roots; 65 percent channers and 5 percent flagstones; very strongly acid; gradual wavy boundary.

R—36 inches; fractured, strongly cemented siltstone bedrock.

Series Range in Characteristics

Depth to bedrock: 20 to 40 inches

A or E/A horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3 (A); value of 5 or 6 and chroma of 4 to 6 (E)

Texture—silt loam

Content of rock fragments—0 to 14 percent

pH range—3.6 to 6.5

Bw horizon:

Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6

Texture—channery, very channery, or extremely channery analogs of silt loam

Content of rock fragments—20 to 75 percent; average more than 35 percent

pH range—3.6 to 5.5

CB horizon:

Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6

Texture—extremely channery silt loam

Content of rock fragments—60 to 85 percent

pH range—3.6 to 5.5

Cincinnati Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon for the MLRA

Cincinnati silt loam, on a slope of 7 percent, in a hayfield; 550 feet south and 320 feet east of the northwest corner of sec. 13, T. 2 N., R. 8 E.; Scott County, Indiana.

Ap—0 to 8 inches; 85 percent brown (10YR 4/3), pale brown (10YR 6/3) dry, and 15 percent yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure parting to moderate medium granular; friable; many very fine and fine roots; moderately acid; abrupt smooth boundary.

Bt—8 to 24 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; many distinct continuous dark yellowish brown (10YR 4/6) clay films on faces of peds; strongly acid; clear wavy boundary.

2Btx1—24 to 36 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure; firm; few very fine roots between peds; many distinct discontinuous grayish brown (10YR 5/2) and common strong brown (7.5YR 5/6) clay films on vertical faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 1 percent pebbles; brittle; very strongly acid; gradual wavy boundary.

2Btx2—36 to 51 inches; brownish yellow (10YR 6/6) loam; moderate very coarse prismatic structure; very firm; common prominent discontinuous grayish brown (10YR 5/2) clay films on vertical faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent pebbles; brittle; strongly acid; gradual wavy boundary.

2Btx3—51 to 74 inches; yellowish brown (10YR 5/6) loam; weak coarse prismatic structure; firm; common distinct discontinuous grayish brown (10YR 5/2) clay films on vertical faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 5 percent pebbles; brittle; very strongly acid; diffuse wavy boundary.

3Bt—74 to 80 inches; strong brown (7.5YR 5/8) clay loam; weak coarse subangular blocky structure; firm; common prominent discontinuous gray (10YR 6/1) clay films on faces of peds; 3 percent pebbles; strongly acid.

MLRA Range in Characteristics

Depth to a fragipan: 20 to 36 inches; 10 to 20 inches in severely eroded areas

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam or silty clay loam
pH range—4.5 to 5.5

2Btx horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6; redoximorphic depletions present
Texture—silt loam or loam
pH range—4.5 to 5.5; less commonly ranges to 6.0 in the lower part

3Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8
Texture—clay loam
Content of rock fragments—4 to 10 percent
pH range—4.5 to 6.0; ranges to 6.5 in the lower part

Cobbsfork Series

Taxonomic classification: Fine-silty, mixed, active, mesic Fragic Glossaqualfs

Typical Pedon for the Series

Cobbsfork silt loam, on a slope of 0.5 percent, in a cultivated field; 150 feet west and 1,300 feet north of the southeast corner of sec. 2, T. 5 N., R. 10 E.; Jefferson County, Indiana.

Ap1—0 to 6 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak fine granular structure; friable; many fine roots; common fine faint gray (10YR 6/1) iron depletions in the matrix; many fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation lining tubular pores; neutral; abrupt smooth boundary.

Ap2—6 to 12 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak very coarse platy structure; friable; few fine roots; common fine distinct gray (10YR 6/1) iron depletions in the matrix; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation lining tubular pores; slightly acid; abrupt smooth boundary.

EBg—12 to 18 inches; light gray (10YR 7/1) silt loam; moderate coarse subangular blocky structure; friable; few fine roots; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine prominent yellowish red (5YR 5/8) masses of iron accumulation lining tubular pores; few fine rounded hard very dark brown (10YR 2/2) iron and manganese concretions throughout; strongly acid; gradual wavy boundary.

Btg—18 to 27 inches; light brownish gray (10YR 6/2) silt loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots between peds; common distinct discontinuous grayish brown (10YR 5/2) clay films on vertical faces of peds; many faint continuous gray (10YR 6/1) clay depletions on faces of peds; common fine prominent strong brown (7.5YR 5/8) and brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation lining tubular pores; few fine rounded hard very dark brown (10YR 2/2) iron and manganese concretions throughout; very strongly acid; gradual wavy boundary.

Btg/Eg—27 to 38 inches; 60 percent light brownish gray (10YR 6/2) silt loam (Btg); moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots between peds; common distinct discontinuous gray (10YR 6/1) clay films on vertical faces of peds; common fine prominent strong brown (7.5YR 5/8) and distinct brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; few fine prominent yellowish red (5YR 5/8) iron lining tubular pores; 40 percent light gray (10YR 7/2) silt loam (Eg); weak medium subangular blocky structure; friable; few fine roots throughout; few fine prominent yellowish red (5YR 5/8) masses of iron accumulation lining tubular pores; few fine rounded hard very dark brown (10YR 2/2) iron and manganese concretions throughout; krotovinas; very strongly acid; gradual wavy boundary.

2Eg/Btgx—38 to 50 inches; 60 percent light gray (10YR 7/2) silt loam (Eg); weak fine subangular blocky structure; friable; common fine roots throughout; common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium rounded hard black (10YR 2/1) iron and manganese concretions; 40 percent light brownish gray (10YR 6/2) silt loam (Btgx); moderate coarse prismatic structure parting to moderate medium angular blocky; firm; brittle; few fine roots between peds; common prominent discontinuous gray (10YR 6/1) clay films on vertical faces of peds; common fine distinct yellowish brown (10YR 5/4) and prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine prominent yellowish red (5YR 4/6) masses of iron accumulation lining tubular pores; common prominent continuous black (10YR 2/1) iron and manganese stains lining pores; few fine rounded hard very dark brown (10YR 2/2) iron and manganese concretions throughout; krotovinas; 1 percent pebbles; very strongly acid; gradual wavy boundary.

2Btx—50 to 85 inches; yellowish brown (10YR 5/4) silt loam; weak medium and coarse prismatic structure parting to weak medium subangular blocky; firm; common faint patchy gray (10YR 6/1) clay films and many faint continuous gray (10YR 6/1) clay depletions on vertical faces of peds; few fine faint light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common medium rounded hard black (10YR 2/1) iron and manganese concretions; 2 percent pebbles; 70 percent brittle; very strongly acid; diffuse wavy boundary.

3Btb—85 to 90 inches; strong brown (7.5YR 5/8) clay loam; weak coarse subangular blocky structure; firm; few prominent patchy light brownish gray (2.5Y 6/2) clay films on faces of peds; common fine and medium prominent gray (10YR 6/1) iron depletions in the matrix; common medium rounded hard very dark gray (10YR 3/1) iron and manganese concretions; 4 percent pebbles; slightly acid.

Series Range in Characteristics

A or Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 1 or 2 (A); hue of 10YR, value of 4 to 6, and chroma of 1 to 3 (Ap)

pH range—4.5 to 7.3

EBg or BEg horizon:

Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2

Texture—silt loam

pH range—4.5 to 5.5

Btg horizon:

Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2

Texture—silt loam or silty clay loam

pH range—3.6 to 5.0

Btg/Eg horizon:

Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2 (Btg); hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2 (Eg)

Texture—silt loam or silty clay loam

pH range—3.6 to 5.0

2Eg/Btgx horizon:

Color—hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 1 or 2 (Eg); hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 1 or 2 (Btgx)

Texture—silt loam or silty clay loam

Content of rock fragments—1 to 2 percent pebbles
pH range—3.6 to 5.0

2Btx or Btgx horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 1 to 6
Texture—silt loam
Content of rock fragments—1 to 2 percent pebbles
pH range—3.6 to 5.5

3Btb or Btgb horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 1 to 8
Texture—clay loam
Content of rock fragments—2 to 10 percent pebbles
pH range—5.1 to 7.3

Coolville Series

Taxonomic classification: Fine, mixed, active, mesic Aquultic Hapludalfs

Typical Pedon for the MLRA

Coolville silt loam (fig. 13), on a slope of 8 percent, in an area of woodland; 1,900 feet west and 820 feet north of the southeast corner of sec. 15, T. 2 N., R. 6 E.; Scott County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves.
A—1 to 2 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine granular structure; very friable; common very fine and fine and common medium and coarse roots; extremely acid; abrupt wavy boundary.
E—2 to 8 inches; yellowish brown (10YR 5/4) silt loam; weak very fine subangular blocky structure; friable; common very fine and fine and common medium and coarse roots; extremely acid; clear wavy boundary.
BE—8 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; common very fine and fine and common medium and coarse roots between peds; extremely acid; clear wavy boundary.
Bt1—12 to 21 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine and common medium and coarse roots between peds; many distinct continuous strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear wavy boundary.
2Bt2—21 to 30 inches; red (2.5YR 4/8) silty clay; many medium prominent pale yellow (2.5Y 7/4) mottles; moderate fine and medium angular blocky structure; firm; few fine and few medium and coarse roots between peds; many distinct continuous red (2.5YR 4/8) and discontinuous pale yellow (2.5Y 7/4) clay films on faces of peds; few fine prominent light gray (10YR 7/2) clay depletions in the matrix; very strongly acid; clear wavy boundary.
2Bt3—30 to 37 inches; light brownish gray (2.5Y 6/2) silty clay; moderate coarse prismatic structure parting to moderate coarse angular blocky; firm; few very fine and fine roots between peds; many distinct continuous light brownish gray (2.5Y 6/2) clay films on faces of peds; many medium prominent red (2.5YR 4/8) masses of iron accumulation in the matrix; very strongly acid; clear wavy boundary.
2BC—37 to 44 inches; brown (7.5YR 5/4) parachannery silty clay loam; weak thick platy structure parting to weak fine angular blocky; firm; few very fine roots between peds; many coarse prominent light olive gray (5Y 6/2) clay depletions in the matrix; 30 percent parachanners; very strongly acid; gradual wavy boundary.
2Cr—44 to 60 inches; light olive brown (2.5Y 5/4) fractured, moderately cemented siltstone; very firm; common fine and medium plate-like barite crystals; common medium distinct reddish brown (5YR 4/4) masses of iron accumulation between shale fragments; very strongly acid.

MLRA Range in Characteristics

Depth to bedrock: 40 to 60 inches

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
pH range—3.6 to 7.3

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
pH range—3.6 to 5.5

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 6 to 8
pH range—3.6 to 5.5

2Bt horizon:
Color—hue of 2.5Y, 10YR, 7.5YR, 5YR, or 2.5YR; value of 4 to 6; and chroma of 2 to 8; redoximorphic depletions present
Texture—silty clay or silty clay loam
Content of pararock fragments—0 to 15 percent
pH range—3.6 to 5.5

2BC horizon:

Color—hue of 2.5Y, 10YR, or 7.5YR; value of 5 or 6; and chroma of 4 to 8; redoximorphic depletions present

Texture—silty clay or silty clay loam or the parachannery analogs of these textures

Content of pararock fragments—10 to 30 percent

pH range—4.5 to 5.5

Cuba Series

Taxonomic classification: Fine-silty, mixed, active, mesic Fluventic Dystrudepts

Typical Pedon for the Series

Cuba silt loam, on a slope of 1 percent, in a cultivated field; 210 feet east and 1,710 feet north of the center of sec. 28, T. 1 N., R. 3 W., Dubois County, Indiana.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

Bw1—10 to 21 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure parting to moderate medium granular; friable; few fine roots; few discontinuous brown (10YR 4/3) organic coatings on faces of peds; very strongly acid; gradual wavy boundary.

Bw2—21 to 47 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure parting to moderate medium granular; friable; very strongly acid; clear wavy boundary.

C—47 to 60 inches; brown (10YR 5/3) silt loam; common medium distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6) mottles; massive; friable; few fine distinct black (10YR 2/1) iron and manganese oxide concretions; very strongly acid.

Series Range in Characteristics

Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4

pH range—4.5 to 7.3

Bw horizon:

Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6

Texture—silt loam

pH range—4.5 to 5.5

C horizon:

Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6

Texture—silt loam or loam; sandy loam, fine sandy loam, or fine sandy loam containing strata of loamy sand in the lower part and thin strata of loamy sand below a depth of 40 inches

Content of rock fragments—0 to 14 percent

pH range—4.5 to 5.5

Deam Series

Taxonomic classification: Fine, illitic, mesic Ultic Hapludalfs

Typical Pedon for the Series

Deam silty clay loam, on a 40 slope of percent, in a forest; 1,780 feet west and 450 feet south of the center of sec. 11, T. 2 N, R. 6 E.; Scott County, Indiana.

A—0 to 3 inches; 75 percent light olive brown (2.5Y 5/3) and 25 percent very dark grayish brown (10YR 3/2) silty clay loam, pale yellow (2.5Y 7/3) and grayish brown (2.5Y 5/2) dry; weak fine subangular blocky structure parting to moderate medium granular; friable; many very fine and fine, and common medium and coarse roots; extremely acid; clear smooth boundary.

Bt1—3 to 11 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots, and common medium and coarse roots between peds; many distinct continuous light olive brown (2.5Y 5/4) clay films on faces of peds; extremely acid; clear wavy boundary.

Bt2—11 to 24 inches; light olive brown (2.5Y 5/4) silty clay; moderate fine angular blocky structure; firm; few very fine and fine, and few medium and coarse roots between peds; many distinct continuous light olive brown (2.5Y 5/4) and very few prominent light olive gray (5Y 6/2) clay films on faces of peds; 5 percent parachanners; very strongly acid; clear wavy boundary.

BC—24 to 30 inches; olive (5Y 4/3) parachannery silty clay; weak medium platy structure parting to moderate fine angular blocky; firm; few very fine, fine and medium roots between peds; common distinct continuous olive gray (5Y 5/2) pore linings on faces of peds; 30 percent parachanners; very strongly acid; clear wavy boundary.

CB—30 to 36 inches; olive (5Y 4/3) extremely parachannery silty clay; moderate thick platy structure; firm; few very fine and fine roots between peds; common distinct continuous olive gray (5Y 5/2) pore linings on rock fragments; 80 percent parachanners; very strongly acid; clear wavy boundary.

Cr—36 to 60 inches; olive (5Y 4/3) weathered, weakly cemented and moderately cemented shale bedrock; very firm; common distinct continuous olive gray (5Y 5/2) pore linings on shale fragments; very strongly acid.

Series Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 2 to 4
pH range—3.6 to 5.0

Bt horizon:
Color—hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 3 or 4
Texture—silty clay loam or silty clay
pH range—3.6 to 5.0

BC or CB horizon:
Color—hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 3 or 4
Texture—parachannery to extremely parachannery silty clay or silty clay loam
Content of pararock fragments—30 to 70 percent
pH range—4.5 to 5.5

Cr horizon:
Color—hue of 5Y, value of 4 or 5, and chroma of 3 or 4
pH range—4.5 to 6.5

Deputy Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Hapludults

Typical Pedon for the Series

Deputy silt loam (fig. 14), on a slope of 3 percent, in a pasture field; 1,200 feet west and 2,300 feet south of the northeast corner of sec. 17, T. 4 N., R. 8 E.; Jefferson County, Indiana.

Ap—0 to 8 inches; 90 percent brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry, mixed with 10 percent yellowish brown (10YR 5/6) subsoil; moderate medium granular structure; friable; common fine roots; slightly acid; abrupt wavy boundary.

Bt1—8 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; few distinct patchy strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—15 to 20 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; few faint discontinuous brown (7.5YR 5/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; very strongly acid; clear wavy boundary.

Bt3—20 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct discontinuous grayish brown (10YR 5/2) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few fine distinct brown (7.5YR 4/4) masses of iron accumulation in the matrix; few prominent very dark brown (10YR 3/1) iron and manganese oxide stains; very strongly acid; clear wavy boundary.

2Bt4—27 to 42 inches; yellowish brown (10YR 5/6) silty clay; moderate medium angular blocky structure; very firm; few fine roots; common prominent discontinuous gray (10YR 5/1) clay films on faces of peds; many medium distinct gray (10YR 6/1) iron depletions in the matrix; few fine distinct brown (7.5YR 4/4) masses of iron accumulation in the matrix; few prominent very dark gray (10YR 3/1) iron and manganese oxide stains; very strongly acid; clear wavy boundary.

2Btg—42 to 53 inches; light gray (10YR 7/1) silty clay; weak coarse angular blocky structure; very firm; few faint discontinuous gray (10YR 5/1) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 3 percent parachanners, $^1/_8$ to $^3/_4$ inches in diameter, and 3 percent parachanners $^3/_4$ inch to 3 inches in diameter; very strongly acid; gradual wavy boundary.

2Cr—53 to 77 inches; 80 percent light gray (2.5Y 7/1) and light olive brown (2.5Y 5/6), and 20 percent strong brown (7.5YR 5/8) and very dark gray (2.5Y 3/1) fractured, weakly cemented shale; very strongly acid; abrupt wavy boundary.

2R—77 inches; fractured, very strongly cemented black shale.

Series Range in Characteristics

Depth to bedrock: 40 to 60 inches

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam or silty clay loam
pH range—4.5 to 6.0

2Bt or 2Btg horizon:
Color—hue of 2.5Y, 10YR, or 7.5YR; value of 4 to 7; and chroma of 1 to 6
Texture—silty clay or clay
pH range—3.6 to 5.0

2Cr horizon:
Color—hue of 2.5Y, 10YR, or 7.5YR; value of 3 to 7; and chroma of 1 to 6

Dubois Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Fragiaqualfs

Typical Pedon for the Series

Dubois silt loam, on a slope of 1 percent, in a cultivated field; 725 feet east and 1,450 feet south of the northwest corner of sec. 35, T. 4 N., R. 6 E.; Scott County, Indiana.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very coarse subangular blocky structure parting to moderate medium granular; friable; common very fine and fine roots; common fine and medium rounded iron and manganese oxide concretions; neutral; clear smooth boundary.

BE—10 to 17 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; few very fine roots between peds; few prominent discontinuous strong brown (7.5YR 4/6) iron oxide stains on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine and medium rounded iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Btg—17 to 23 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to moderate coarse angular blocky; firm; few very fine roots between peds; common distinct continuous grayish brown (10YR 5/2) clay films on faces of peds; few prominent discontinuous strong brown (7.5YR 5/6) iron oxide stains on faces of peds; many light gray (10YR 7/2) clay depletions on faces of peds; many medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; extremely acid; clear wavy boundary.

Bt—23 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate coarse angular blocky; firm; few very fine roots between peds; many prominent continuous gray (10YR 6/1) clay films on faces of peds; many fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; extremely acid; gradual wavy boundary.

2Btx1—38 to 62 inches; dark yellowish brown (10YR 4/6) silt loam; moderate very coarse prismatic structure; very firm; common continuous prominent gray (10YR 6/1), brown (10YR 5/3), and common discontinuous prominent reddish brown (5YR 4/4) clay films on vertical faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; many distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; brittle; very strongly acid; gradual wavy boundary.

2Btx2—62 to 82 inches; brownish yellow (10YR 6/6) silty clay loam; weak coarse and very coarse prismatic structure; firm; common continuous prominent gray (10YR 5/1) and brown (10YR 4/3) clay films on vertical faces of peds; few prominent discontinuous reddish brown (5YR 4/4) iron oxide stains on vertical faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; brittle; strongly acid; diffuse wavy boundary.

2Bt—82 to 96 inches; strong brown (7.5YR 5/6) silty clay loam; moderate coarse angular blocky structure; very firm; many prominent continuous light brownish gray (10YR 6/2) clay films on faces of peds; common medium distinct light gray (10YR 7/2) iron depletions in the matrix; common medium faint brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; neutral.

Series Range in Characteristics

Depth to a fragipan: 22 to 40 inches

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—4.5 to 7.3

BE or EB horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 6
Texture—silt loam
pH range—4.5 to 6.0

Bt or Btg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 to 4
Texture—silt loam or silty clay loam
pH range—3.6 to 5.0

Btx or 2Btx horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—silt loam, silty clay loam, or loam
pH range—3.6 to 5.5

2Bt or 2Btg horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 1 to 8
Texture—silt loam, silty clay loam, clay loam, loam, or sandy clay loam
Content of rock fragments—0 to 2 percent pebbles
pH range—5.1 to 7.3

Elkinsville Series

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for the Series

Elkinsville silt loam, on a slope of 3 percent, in a cultivated field; 1,690 feet south and 1,370 feet east of the northwest corner of sec. 3, T. 6 S., R. 12 E.; Ripley County, Indiana.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak very fine granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.

Bt1—9 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; few fine roots; few discontinuous faint yellowish brown (10YR 5/4) clay films on faces of peds; few patchy distinct brown (10YR 4/3) organic coatings on faces of peds; slightly acid; gradual smooth boundary.

Bt2—15 to 24 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; firm; many discontinuous distinct yellowish brown (10YR 5/4) clay films on faces of peds; very strongly acid; gradual smooth boundary.

2Bt3—24 to 38 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many continuous distinct brown (7.5YR 5/4) clay films on faces of peds; 1 percent pebbles; very strongly acid; gradual smooth boundary.

2Bt4—38 to 50 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; firm; few fine roots; many discontinuous distinct yellowish brown (10YR 5/4) clay films on faces of peds; very strongly acid; 1 percent pebbles; gradual smooth boundary.

2Bt5—50 to 58 inches; strong brown (7.5YR 5/6) sandy clay loam; few fine distinct pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; friable; few discontinuous distinct yellowish brown (10YR 5/4) clay bridges between sand grains; common irregular fine and medium masses of iron accumulation in the matrix; very strongly acid; gradual smooth boundary.

2CB—58 to 68 inches; yellowish brown (10YR 5/6) clay loam; common fine distinct pale brown (10YR 6/3) mottles; massive; friable; common irregular fine and medium masses of iron accumulation in the matrix; 1 percent pebbles; strongly acid; clear smooth boundary.

2C—68 to 80 inches; dark yellowish brown (10YR 4/4) loam; massive; friable; 4 percent pebbles; moderately acid.

Series Range in Characteristics

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam or silty clay loam
pH range—4.5 to 7.3

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 5 percent
pH range—4.5 to 5.5

2BC or CB horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—loam, sandy loam, fine sandy loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 5 percent
pH range—4.5 to 5.5

2C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—loam, sandy loam, or fine sandy loam; includes thin strata of clay loam or sandy clay loam in some pedons
Content of rock fragments—0 to 14 percent
pH range—4.5 to 6.0

Gilwood Series

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Typical Pedon for the Series

Gilwood silt loam, on a slope of 22 percent, in a forest; 600 feet south and 130 feet east of the center of sec. 26, T. 7 N., R. 2 E.; Jackson County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.
A—1 to 6 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak medium granular structure; friable; many fine and medium roots; 10 percent channers; slightly acid; clear wavy boundary.
BE—6 to 11 inches; yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure; friable; many medium roots; 15 percent channers; strongly acid; clear wavy boundary.
Bt—11 to 22 inches; yellowish brown (10YR 5/6) channery silt loam; moderate fine and medium subangular blocky structure; friable; common fine and medium roots; many distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; 20 percent channers; very strongly acid; gradual wavy boundary.
CB—22 to 32 inches; light yellowish brown (2.5Y 6/4) extremely channery silt loam; weak fine subangular blocky structure; friable; 65 percent channers; very strongly acid; clear wavy boundary.
R—32 inches; fractured, very strongly cemented siltstone bedrock.

Series Range in Characteristics

Depth to bedrock: 20 to 40 inches

A or E/A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3 (A); hue of 10YR, value of 6, and chroma of 4 to 6 (E)
Content of rock fragments—0 to 10 percent
pH range—4.5 to 6.5

BE horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam or channery silt loam
Content of rock fragments—5 to 15 percent
pH range—4.5 to 5.5

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6
Texture—channery silt loam
Content of rock fragments—15 to 30 percent
pH range—3.6 to 5.0

CB and BC horizons:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6
Texture—very channery or extremely channery silt loam
Content of rock fragments—35 to 65 percent
pH range—3.6 to 5.0

Gnawbone Series

Taxonomic classification: Fine-silty, mixed, semiactive, mesic Typic Hapludults

Typical Pedon for the Series

Gnawbone silt loam, on a convex, west-facing slope of 22 percent, in a forest; 600 feet south and 450 feet west of the northeast corner of sec. 28, T. 2 N., R. 6 E.; Scott County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.
A—1 to 7 inches; light yellowish brown (10YR 6/4) silt loam, very pale brown (10YR 7/4) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; many fine, very fine and medium, and few coarse roots; 3 percent pebbles (ironstone); extremely acid; clear wavy boundary.
Bt1—7 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; many medium common fine and very fine and few coarse roots between peds; few distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; 3 percent pebbles (ironstone); 10 percent parachanners; extremely acid; clear wavy boundary.
Bt2—12 to 17 inches; dark yellowish brown (10YR 4/6) parachannery silty clay loam; moderate medium subangular blocky structure; friable; common medium fine very fine and few coarse roots between peds; common distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; 10 percent pebbles (ironstone); 15 percent parachanners; very strongly acid; clear wavy boundary.
Bt3—17 to 27 inches; dark yellowish brown (10YR 4/6) parachannery silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium and few coarse roots between peds; many distinct continuous strong brown (7.5YR 5/6) clay films on faces of peds; 3 percent pebbles

(ironstone); 20 percent parachanners; very strongly acid; clear wavy boundary.

Bt4—27 to 35 inches; yellowish brown (10YR 5/4) very parachannery silt loam; moderate fine subangular blocky structure; friable; common fine and medium roots between peds; few distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; 3 percent pebbles (ironstone); 35 percent parachanners; very strongly acid; gradual wavy boundary.

CB—35 to 39 inches; yellowish brown (10YR 5/4) extremely parachannery silt loam; weak fine subangular blocky structure; friable; 3 percent pebbles (ironstone); 60 percent parachanners; very strongly acid; gradual wavy boundary.

Cr—39 to 60 inches; light olive brown (2.5Y 5/4) fractured, moderately cemented siltstone bedrock.

Series Range in Characteristics

Depth to bedrock: 20 to 40 inches

A or E/A horizon:
Color—hue of 10YR, value of 3 to 6, and chroma of 2 to 4
pH range—3.6 to 7.3

Bt or BE horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6
Texture—silt loam or silty clay loam or the parachannery and very parachannery analogs of these textures
Content of pararock fragments—0 to 35 percent
pH range—3.6 to 5.0

CB and BC horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 5 or 6; and chroma of 4 to 8
Texture—parachannery to extremely parachannery silt loam or silty clay loam
Content of pararock fragments—30 to 70 percent
pH range—3.6 to 5.0

Cr horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6

Haubstadt Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudalfs

Typical Pedon for the MLRA

Haubstadt silt loam, on a slope of 4 percent, in a cultivated field; 1,930 feet east and 500 feet south of the center of sec. 18, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 7 inches; 80 percent dark yellowish brown (10YR 4/4) silt loam mixed with 20 percent yellowish brown (10YR 5/6) subsoil material, light yellowish brown (10YR 6/4) and very pale brown (10YR 7/4) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common very fine and fine roots; few fine rounded iron and manganese oxide concretions; slightly acid; abrupt smooth boundary.

BE—7 to 14 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; few very fine and fine roots between peds; many faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; common discontinuous distinct dark yellowish brown (10YR 4/4) organic coatings in root channels; few common fine rounded iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Bt1—14 to 20 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few very fine and fine roots between peds; many discontinuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; common discontinuous distinct dark yellowish brown (10YR 4/4) and few brown (10YR 5/3) clay films on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine rounded iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Bt2—20 to 32 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate coarse subangular blocky; firm; few very fine roots between peds; many continuous distinct dark yellowish brown (10YR 4/4) and common discontinuous grayish brown (10YR 5/2) clay films on faces of peds; many continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine rounded iron and manganese oxide concretions; very strongly acid; gradual irregular boundary.

Btx1—32 to 54 inches; brownish yellow (10YR 6/6) silt loam; moderate very coarse prismatic structure parting to moderate coarse subangular blocky; very firm; few very fine roots between peds; many continuous prominent grayish brown (10YR 5/2) and common distinct brown (10YR 4/3) clay films on vertical faces of peds; many continuous distinct light gray (10YR 7/2) clay depletions on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine rounded iron and manganese oxide concretions; brittle; very strongly acid; gradual wavy boundary.

Btx2—54 to 61 inches; brownish yellow (10YR 6/6) silty clay loam; weak very coarse prismatic structure; very firm; many continuous prominent grayish brown (10YR 5/2) and common distinct brown (10YR 4/3) clay films on vertical faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine rounded iron and manganese oxide concretions; brittle; very strongly acid; gradual wavy boundary.

2Bt—61 to 80 inches; strong brown (7.5YR 5/6) silty clay loam; moderate coarse subangular blocky structure; firm; many continuous prominent gray (10YR 5/1) clay films on faces of peds; common coarse prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium and coarse distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; very strongly acid.

MLRA Range in Characteristics

Depth to a fragipan: 20 to 40 inches in uneroded pedons; ranges to 12 inches in severely eroded pedons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6; redoximorphic depletions present
Texture—silt loam or silty clay loam
pH range—4.5 to 5.5

Btx horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 8; redoximorphic depletions present
Texture—silt loam or silty clay loam
pH range—4.5 to 5.5

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 to 8; redoximorphic depletions present
Texture—silty clay loam, clay loam, loam, or silt loam
Content of rock fragments—0 to 10 percent
pH range—4.5 to 7.3

Haymond Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon for the Series

Haymond silt loam, in a nearly level area in a cultivated field; 1,800 feet east and 300 feet north of the southwest corner of sec. 2, T. 1 S., R. 11 W.; Knox County, Indiana.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.

Bw1—10 to 25 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common distinct continuous brown (10YR 4/3) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bw2—25 to 44 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few distinct discontinuous dark yellowish brown (10YR 4/4) organic coatings on faces of peds; neutral; clear smooth boundary.

C—44 to 60 inches; yellowish brown (10YR 5/4) fine sandy loam; massive; weak bedding planes; friable; slightly alkaline.

Series Range in Characteristics

Depth to the base of the cambic horizon: 30 to 50 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
pH range—5.6 to 7.3

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
pH range—5.6 to 7.3

C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—silt loam, loam, fine sandy loam, or sandy loam
pH range—6.1 to 7.8

Hickory Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the MLRA

Hickory loam, on a slope of 35 percent, in a forest; 1,305 feet west and 845 feet north of the center of sec. 22, T. 4 N., R. 7 E.; Scott County, Indiana.

A—0 to 4 inches; 80 percent very dark brown (10YR 2/2) and 20 percent yellowish brown (10YR 5/4) loam, dark grayish brown (10YR 4/2) and very pale brown (10YR 7/4) dry; moderate medium granular structure; very friable; many fine roots; 2 percent pebbles; very strongly acid; abrupt smooth boundary.

E—4 to 11 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure parting to moderate medium granular; friable; common fine and medium roots; few fine rounded iron and manganese oxide concretions; 2 percent pebbles; very strongly acid; clear smooth boundary.

Bt1—11 to 20 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine and medium roots between peds; common faint discontinuous yellowish brown (10YR 5/6) clay films on faces of peds; common distinct discontinuous light yellowish brown (10YR 6/4) silt coatings on faces of peds; common medium rounded iron and manganese oxide concretions; 3 percent pebbles; strongly acid; clear wavy boundary.

Bt2—20 to 29 inches; yellowish brown (10YR 5/6) clay loam; moderate medium and coarse subangular blocky structure; firm; few fine and medium roots between peds; many distinct continuous dark yellowish brown (10YR 4/6) clay films on faces of peds; common distinct discontinuous light yellowish brown (10YR 6/4) silt coatings on faces of peds; common medium irregular iron and manganese oxide concretions; 2 percent pebbles; very strongly acid; clear wavy boundary.

Bt3—29 to 39 inches; yellowish brown (10YR 5/6) loam; moderate coarse subangular blocky structure; firm; few fine and medium roots between peds; many distinct continuous brown (7.5YR 4/4) clay films on faces of peds; few distinct patchy light yellowish brown (10YR 6/4) silt coatings on faces of peds; few medium irregular masses of iron and manganese oxides; 3 percent pebbles; very strongly acid; gradual wavy boundary.

BCt—39 to 45 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; firm; few fine roots between peds; common distinct continuous brown (7.5YR 4/4) clay films on faces of peds; 6 percent pebbles; slightly alkaline; gradual wavy boundary.

CB—45 to 51 inches; yellowish brown (10YR 5/6) loam; massive; firm; very few distinct patchy brown (7.5YR 4/4) clay films in root channels; 6 percent pebbles; strongly effervescent; moderately alkaline; gradual wavy boundary.

C—51 to 60 inches; light yellowish brown (10YR 6/4) loam; massive; firm; 6 percent pebbles; strongly effervescent; moderately alkaline

MLRA Range in Characteristics

Depth to the base of the argillic horizon: More than 40 inches
Thickness of the loess: 0 to 20 inches
Thickness of the A horizon: 1 to 4 inches

A or Ap horizon:
Color—hue of 10YR, value of 2 to 4, and chroma of 2 or 3 (A); hue of 10YR or 5YR, value of 4 or 5, and chroma of 3 to 6 (Ap)
Texture—clay loam or loam
pH range—4.5 to 6.0; ranges to 7.3 in limed areas

E horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—silt loam or loam
pH range—4.5 to 6.0

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam or loam
pH range—4.5 to 6.0 in the upper part; ranges to 7.3 in the lower part

BCt or CB horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam or loam
pH range—5.6 to 8.4

C horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
Texture—loam or clay loam
pH range—7.4 to 8.4

Holton Series

Taxonomic classification: Coarse-loamy, mixed, active, nonacid, mesic Aeric Endoaquepts

Typical Pedon for the Series

Holton silt loam, in a nearly level area in an idle field; 1,050 feet east and 200 feet south of the northwest corner of sec. 29, T. 10 N., R. 13 E.; Ripley County, Indiana.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak very fine granular structure; friable; many very fine roots; slightly acid; gradual smooth boundary.

BA—7 to 14 inches; brown (10YR 5/3) loam; weak medium subangular blocky structure; friable; many fine roots; few fine faint dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid; abrupt smooth boundary.

Bg1—14 to 20 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; common fine roots; many coarse distinct yellowish brown (10YR 5/4) and few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; moderately acid; gradual smooth boundary.

Bg2—20 to 31 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few fine roots; many medium distinct yellowish brown (10YR 5/4) and few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; strongly acid; gradual smooth boundary.

Bg3—31 to 41 inches; grayish brown (10YR 5/2) fine sandy loam; weak medium prismatic structure parting to weak fine subangular blocky; friable; few fine roots; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; strongly acid; gradual smooth boundary.

Cg—41 to 60 inches; grayish brown (10YR 5/2) fine sandy loam; massive; very friable; many coarse distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid.

Series Range in Characteristics

A or Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

Texture—silt loam or loam

pH range—5.6 to 7.3

BA, Bw, or Bg horizon:

Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 6; redoximorphic depletions present

Texture—silt loam, loam, fine sandy loam, or sandy loam; includes 1- to 3-inch layers of loamy sand

Content of rock fragments—0 to 10 percent pebbles

pH range—5.1 to 7.3; at least one horizon at 5.6 or above

C or Cg horizon:

Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 4

Texture—fine sandy loam, sandy loam, loam, or sandy clay loam; includes strata of loamy sand or loamy fine sand

Content of rock fragments—0 to 15 percent pebbles

pH range—6.1 to 7.3

Jennings Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Fragiudults

Typical Pedon for the Series

Jennings silt loam, on a convex, north-facing slope of 5 percent, in a cultivated field; 1,030 feet east and 820 feet south of the northwest corner of sec. 16, T. 3 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 9 inches; 75 percent brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry, and 25 percent yellowish brown (10YR 5/6); weak medium subangular blocky structure parting to moderate medium granular; friable; common fine and very fine roots; common fine iron and manganese oxide concretions; neutral; abrupt smooth boundary.

Bt1—9 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; many discontinuous distinct strong brown (7.5YR 4/6) clay films on faces of peds; common discontinuous distinct brownish yellow (10YR 6/6) silt coatings on faces of peds; common discontinuous distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; common fine iron and manganese oxide concretions; slightly acid; clear wavy boundary.

Bt2—21 to 27 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few very fine roots between peds; common discontinuous distinct strong brown (7.5YR 4/6) and few discontinuous grayish brown (10YR 5/2) clay films on faces of peds; many discontinuous distinct light yellowish brown (10YR 6/4) silt coatings on faces of peds; common fine iron and manganese oxide concretions; very strongly acid; gradual wavy boundary.

2Btx—27 to 38 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure parting to moderate thick platy; very firm; few very fine roots between peds; common continuous prominent grayish brown (10YR 5/2) clay films on vertical faces of peds; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common continuous distinct light gray (10YR 7/2) clay depletions on faces of peds; few discontinuous red (2.5YR 5/6) iron stains on faces of peds and in pores; 1 percent pebbles; common fine iron and manganese oxide concretions; brittle in 65 percent of the volume; very strongly acid; gradual wavy boundary.

3Btb1—38 to 49 inches; strong brown (7.5YR 5/6) clay loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm; common continuous prominent grayish brown (10YR 5/2) clay films on vertical faces of peds; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; few continuous distinct light gray (10YR 7/2) clay depletions on vertical faces of peds; few fine distinct light brownish gray (10YR 6/2) iron oxide depletions in the matrix; common fine iron and manganese concretions; 1 percent pebbles; very strongly acid; gradual wavy boundary.

3Btb2—49 to 65 inches; strong brown (7.5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; common patchy prominent gray (10YR 6/1) clay films on faces of peds; few discontinuous prominent light gray (10YR 7/2) clay depletions on faces of peds; common patchy prominent red (2.5YR 5/6) iron stains on faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent pebbles; extremely acid; gradual wavy boundary.

3Btb3—65 to 73 inches; strong brown (7.5YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; common patchy prominent gray (10YR 6/1) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 2 percent pebbles; extremely acid; clear wavy boundary.

4BC—73 to 77 inches; 60 percent brown (7.5YR 4/4) and 40 percent strong brown (7.5YR 5/6) very parachannery silty clay; moderate medium platy structure; firm; many medium prominent brown (7.5YR 5/2) iron depletions in the matrix; 50 percent parachanners; extremely acid; abrupt wavy boundary.

4Cr—77 to 79 inches; black (10YR 2/1) and dark brown (7.5YR 3/4) weakly cemented shale bedrock; abrupt wavy boundary.

4R—79 inches; black, fissile, strongly cemented shale bedrock.

Series Range in Characteristics

Depth to hard bedrock: 60 to 90 inches
Depth to a fragipan: 20 to 32 inches; 15 to 20 inches in severely eroded pedons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam or silty clay loam
pH range—3.6 to 5.0; ranges to 7.3 in the upper part

2Btx horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam, loam, or silty clay loam
pH range—3.6 to 5.0

3Btb horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6
Texture—clay loam or silty clay loam
Content of rock fragments—2 to 10 percent
pH range—3.6 to 5.0

4BC, 4CB, or 4Btb horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silty clay loam or silty clay or the parachannery to extremely parachannery analogs of these textures
Content of pararock fragments—5 to 70 percent
pH range—3.6 to 5.0

Jessietown Series

Taxonomic classification: Fine-silty, mixed, semiactive, mesic Typic Hapludults

Typical Pedon for the MLRA

Jessietown silt loam, on an east-facing slope of 36 percent, in a forest; 400 feet southeast of the northwest boundary and 550 feet northeast of the southwest boundary in Clark Grant No. 297; Scott County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.

A—1 to 6 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; strong fine granular structure; friable; many fine and medium, and few

Figure 12.—Profile of Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration.

Figure 13.—Profile of Coolville silt loam, 6 to 12 percent slopes, severely eroded.

Figure 14.—Profile of Deputy silt loam, 2 to 6 percent slopes, eroded.

Figure 15.—Profile of Medora silt loam, 2 to 6 percent slopes, eroded.

Figure 16.—Profile of Rarden silty clay loam, 6 to 12 percent slopes, severely eroded.

Figure 17.—Profile of Trappist silt loam, 6 to 12 percent slopes, eroded.

coarse roots; 1 percent parachanners; very strongly acid; abrupt smooth boundary.

Bt1—6 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common very fine, fine, medium, and coarse, and few very coarse roots; few faint discontinuous dark yellowish brown (10YR 4/4) clay films on faces of peds; many distinct discontinuous dark brown (10YR 3/3) organic coatings on faces of peds; 7 percent parachanners; very strongly acid; clear wavy boundary.

Bt2—15 to 24 inches; dark yellowish brown (10YR 4/6) very parachannery silty clay loam; moderate fine subangular blocky structure; friable; common fine and medium, and few coarse roots; common faint continuous dark yellowish brown (10YR 4/4) clay films on faces of peds; 35 percent parachanners; 5 percent channers; extremely acid; clear wavy boundary.

CB—24 to 31 inches; 60 percent brown (7.5YR 4/4) and 40 percent yellowish red (5YR 4/6) extremely parachannery silty clay; weak fine subangular blocky structure; firm; few fine and medium roots; 60 percent parachanners; 5 percent channers; very strongly acid; abrupt wavy boundary.

R—31 inches; fractured, very strongly cemented black shale.

MLRA Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 3 or 4
Content of rock fragments—0 to 5 percent
pH range—3.6 to 5.5

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam or the parachannery or very parachannery analogs of these textures
Content of pararock fragments—5 to 50 percent
pH range—3.6 to 5.5

BC or CB horizon:
Color—hue of 7.5YR or 5YR, value of 4, and chroma of 4 to 6
Texture—very parachannery or extremely parachannery analogs of silty clay loam or silty clay
Content of pararock fragments—35 to 75 percent
pH range—3.6 to 5.5

Kurtz Series

Taxonomic classification: Fine-silty, mixed, semiactive, mesic Ultic Hapludalfs

Typical Pedon for the Series

Kurtz silt loam, on a convex, east-facing slope of 37 percent, in a hardwood forest; 500 feet east and 2,000 feet south of the northwest corner of sec. 19, T. 5 N., R. 5 E.; Jackson County, Indiana.

Oi—0 to 1 inch; roots and partially decomposed leaves.

A—1 to 3 inches; grayish brown (10YR 5/2) silt loam, pale brown (10YR 6/3) dry; moderate medium and fine granular structure; friable; many fine and medium roots; 5 percent pebbles; extremely acid; abrupt smooth boundary.

E—3 to 7 inches; light yellowish brown (2.5Y 6/4) silt loam; moderate medium and fine granular structure; friable; many fine and medium roots; 4 percent pebbles; extremely acid; clear smooth boundary.

BE—7 to 13 inches; brownish yellow (10YR 6/6) silt loam; moderate medium and fine subangular blocky structure; friable; common medium and coarse roots; 2 percent pebbles (ironstone); very strongly acid; clear wavy boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/6) silt loam; common fine faint strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common medium and coarse roots; many distinct continuous light yellowish brown (10YR 6/4) silt coatings over clay films on faces of peds; 2 percent pebbles (ironstone); very strongly acid; clear wavy boundary.

Bt2—21 to 37 inches; strong brown (7.5YR 5/6) and light yellowish brown (2.5Y 6/4) silty clay loam; common fine prominent greenish gray (5GY 6/1) and yellowish red (5YR 4/6) mottles; moderate fine and medium subangular blocky structure; firm; common medium and coarse roots; many prominent continuous light yellowish brown (2.5Y 6/4) clay films on faces of peds; 2 percent pebbles and cobbles (ironstone); 10 percent parachanners; very strongly acid; gradual wavy boundary.

CB—37 to 47 inches; light olive brown (2.5Y 5/4) extremely parachannery silty clay loam; many medium prominent gray (5Y 6/1) and greenish gray (5GY 6/1) and common fine distinct strong brown (7.5YR 5/6) mottles; weak medium and fine subangular blocky structure, and thick platy rock structure; firm; few medium and coarse roots; 5 percent pebbles and cobbles (ironstone); 60

percent parachanners; very strongly acid; gradual wavy boundary.

Cr—47 to 60 inches; olive (5Y 4/3) interbedded moderately cemented siltstone and shale bedrock; light olive gray (5Y 6/2) coatings between fragments; 5 percent pebbles and cobbles (ironstone); strongly acid.

Series Range in Characteristics

Depth to bedrock: 40 to 60 inches

A or E horizon:

Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3 (A); hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4 (E)
Texture—silt loam
Content of rock fragments—1 to 5 percent
pH range—3.6 to 5.0

Bt horizon:

Color—hue of 7.5YR, 10YR, or 2.5Y; value of 5 or 6; and chroma of 4 to 6
Texture—silt loam or silty clay loam or the parachannery analogs of these textures
Content of rock fragments—1 to 5 percent
Content of pararock fragments—0 to 30 percent
pH range—3.6 to 5.0

BC horizon:

Color—hue of 10YR, 2.5Y, or 5Y; value of 5 or 6; and chroma of 3 to 6
Texture—very parachannery or extremely parachannery analogs of silt loam or silty clay loam
Content of rock fragments—1 to 5 percent
Content of pararock fragments—35 to 65 percent
pH range—4.5 to 5.5

Cr horizon:

Color—hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 or 4

Medora Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Fragiudults

Typical Pedon for the Series

Medora silt loam (fig. 15), on a south-facing slope of 8 percent, in a cultivated field; 1,195 feet west and 1,400 feet south of the center of sec. 5, T. 5 N., R. 6 E.; Jackson County, Indiana.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium and coarse granular structure; friable; moderately acid; abrupt smooth boundary.

Bt—8 to 21 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; many distinct continuous dark yellowish brown (10YR 4/6) clay films on faces of peds; many discontinuous light yellowish brown (10YR 6/4) silt coatings on faces of peds; very strongly acid; clear wavy boundary.

2Btx1—21 to 33 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure parting to weak very thick platy; very firm; common fine vesicular pores; many distinct continuous dark brown (7.5YR 4/4) clay films on faces of peds and in pores; common prominent continuous light gray (10YR 7/2) clay depletions on faces of peds; common medium distinct light gray (10YR 7/2) iron depletions in the matrix; many fine and medium black (N 2/0) and common fine yellowish red (5YR 5/8) iron and manganese oxide concretions; brittle; very strongly acid; clear wavy boundary.

2Btx2—33 to 45 inches; strong brown (7.5YR 5/6) and yellowish red (5YR 5/6) loam; weak very coarse prismatic structure parting to weak very thick platy; very firm; common fine vesicular pores; many prominent continuous dark brown (7.5YR 4/4) clay films on faces of peds and in pores; common prominent continuous light brownish gray (10YR 6/2) clay films on vertical faces of peds; common prominent continuous light gray (10YR 7/2) clay depletions on faces of peds; few fine and medium black (N 2/0) iron and manganese oxide concretions; brittle; very strongly acid; gradual wavy boundary.

3Bt1—45 to 57 inches; yellowish red (5YR 4/6) clay loam; weak very thick platy structure parting to moderate medium angular blocky; firm; common fine pores; many prominent continuous reddish brown (5YR 4/4) clay films on faces of peds; few prominent continuous light brownish gray (10YR 6/2) clay films in root channels; common distinct continuous light brown (7.5YR 6/4) skeletans on faces of peds; very strongly acid; gradual wavy boundary.

3Bt2—57 to 70 inches; yellowish red (5YR 5/6) clay loam; moderate very thick platy structure; firm; many prominent continuous reddish brown (5YR 4/4) clay films on faces of peds; common distinct continuous light brown (7.5YR 6/4) skeletans on faces of peds; very strongly acid; gradual wavy boundary.

3Bt3—70 to 80 inches; red (2.5YR 4/6) sandy clay; weak coarse subangular blocky structure; firm;

many prominent continuous dark red (2.5YR 3/6) clay films on faces of peds; common prominent continuous light brown (7.5YR 6/4) skeletans on faces of peds; common medium black (N 2/0) iron and manganese oxide concretions; 4 percent pebbles; very strongly acid.

Series Range in Characteristics

Depth to a fragipan: 20 to 36 inches; severely eroded pedons are at a depth of 12 to 20 inches

Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6

pH range—4.5 to 7.3

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam or silty clay loam

pH range—4.5 to 5.5

2Btx horizon:

Color—hue of 10YR, 7.5YR, or 5YR; value of 4 to 6; and chroma of 4 to 6

Texture—silt loam, loam, clay loam, or gravelly loam

Content of rock fragments—0 to 15 percent pebbles

pH range—4.5 to 5.0

3Bt horizon:

Color—hue of 7.5YR, 5YR, or 2.5YR; value of 4 or 5; and chroma of 6 to 8

Texture—clay loam, sandy clay loam, sandy clay, clay, gravelly clay loam, or gravelly sandy clay loam

Content of rock fragments—0 to 15 percent pebbles

pH range—4.5 to 5.5

Nabb Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudalfs

Typical Pedon for the Series

Nabb silt loam, on a slope of 3 percent, in a cultivated field; 1,190 feet west and 830 feet south of the center of sec. 21, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 7 inches; 75 percent dark yellowish brown (10YR 4/4) and 25 percent brownish yellow (10YR 6/6) silt loam, very pale brown (10YR 7/3) dry; moderate fine granular structure; friable; common very fine roots; few fine rounded black (10YR 2/1) iron and manganese oxide concretions; strongly acid; abrupt smooth boundary.

BE—7 to 13 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; common very fine roots; few distinct patchy very pale brown (10YR 7/3) silt coatings on faces of peds; common fine rounded black (10YR 2/1) iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Bt—13 to 20 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; few very fine roots; few faint patchy yellowish brown (10YR 5/6) clay films on faces of peds; few fine distinct light gray (10YR 7/2) iron depletions in the matrix; common distinct discontinuous light yellowish brown (10YR 6/4) silt coatings on faces of peds; common fine rounded black (10YR 2/1) iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Bt/BE—20 to 33 inches; 65 percent yellowish brown (10YR 5/4) silty clay loam (Bt); moderate medium prismatic structure parting to moderate coarse subangular blocky; firm; few very fine roots; many distinct continuous light brownish gray (10YR 6/2) and brown (10YR 5/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many distinct continuous pale brown (10YR 6/3) silt coatings on faces of peds; common fine rounded black (10YR 2/1) iron and manganese oxide concretions; 35 percent light yellowish brown (10YR 6/4) silt loam (BE) filling former krotovinas and root channels; weak fine subangular blocky structure; friable; few very fine roots; very strongly acid; gradual wavy boundary.

2Btx/Bt—33 to 53 inches; 65 percent yellowish brown (10YR 5/8) silt loam (Btx); moderate very coarse prismatic structure parting to weak very thick platy; very firm; common prominent continuous gray (10YR 6/1) clay films on faces of vertical peds; brittle; 35 percent yellowish brown (10YR 5/6) silt loam (Bt); weak medium subangular blocky structure; friable; common fine prominent light gray (10YR 7/2) iron depletions in the matrix; in both parts of the horizon, few fine rounded black (10YR 2/1) iron and manganese oxide concretions; 1 percent pebbles; very strongly acid; gradual wavy boundary.

2Btx—53 to 71 inches; yellowish brown (10YR 5/8) silt loam; moderate very coarse prismatic structure; firm; few prominent continuous gray (10YR 6/1) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) clay depletions in the matrix; few fine rounded black (10YR 2/1) iron and manganese oxide concretions; 1 percent pebbles; 75 percent brittle; very strongly acid; diffused wavy boundary.

3Btb—71 to 80 inches; strong brown (7.5YR 5/8) clay loam; moderate coarse subangular blocky structure; firm common prominent continuous gray (10YR 5/1) clay films on faces of peds; common medium prominent gray (10YR 6/1) iron depletions in the matrix; common medium irregular black (10YR 2/1) iron and manganese oxide concretions; 8 percent pebbles; moderately acid.

Series Range in Characteristics

Depth to a fragipan: 24 to 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
pH range—4.5 to 7.3

BE or EB horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
pH range—4.5 to 5.5; ranges to 7.3 in limed areas

Bt or Bt/BE horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6; redoximorphic depletions present
Texture—silt loam or silty clay loam (Bt); silt loam (BE)
pH range—3.6 to 5.5

2Btx or 2Btx/Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8
Texture—silt loam or silty clay loam
Content of rock fragments—1 to 2 percent pebbles
pH range—3.6 to 5.5

3Btb horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 to 8; less commonly a chroma of 2
Texture—clay loam or loam
Content of rock fragments—4 to 10 percent
pH range—5.1 to 7.3

Negley Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Paleudalfs

Typical Pedon for the MLRA

Negley silt loam, on a slope of 14 percent, in a cultivated field; 1,580 feet west and 495 feet north of the southeast corner of sec. 7, T. 5 N., R. 6 E.; Jackson County, Indiana.

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; strongly acid; abrupt smooth boundary.

BE—10 to 16 inches; brown (7.5YR 5/4) loam; moderate medium subangular blocky structure; friable; few patchy brown (7.5YR 4/4) clay films on faces of peds; common fine black (N 2/0) iron and manganese concretions; strongly acid; clear wavy boundary.

Bt1—16 to 26 inches; yellowish red (5YR 4/6) loam; moderate medium and coarse subangular blocky structure; firm; many continuous strong brown (7.5YR 4/4) and reddish brown (5YR 4/4) clay films on faces of peds; common fine black (N 2/0) iron and manganese concretions; 5 percent rounded pebbles; a layer of very gravelly clay loam at a depth of 24 to 26 inches; strongly acid; gradual wavy boundary.

Bt2—26 to 39 inches; red (2.5YR 4/6) clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; many continuous reddish brown (5YR 4/4) clay films on faces of peds and in pores; many prominent light yellowish brown (10YR 6/4) silt coatings and clean sand grains on faces of peds; common fine black (N 2/0) iron and manganese concretions; 5 percent rounded pebbles; strongly acid; gradual wavy boundary.

Bt3—39 to 50 inches; red (2.5YR 4/6) sandy clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; many continuous reddish brown (5YR 4/4) clay films on faces of peds; many prominent light brown (7.5YR 6/4) silt coatings and clean sand grains on faces of peds and in pores; common fine black (N 2/0) iron and manganese concretions; 3 percent rounded pebbles; strongly acid; gradual wavy boundary.

Bt4—50 to 67 inches; red (2.5YR 4/6) sandy clay loam; weak coarse prismatic structure parting to moderate coarse and very coarse subangular blocky; firm; many continuous reddish brown (5YR 4/4) clay films on faces of peds and in pores; many prominent light brown (7.5YR 6/4) silt coatings and clean sand grains on faces of peds; common fine black (N 2/0) iron and manganese concretions; 9 percent rounded pebbles; strongly acid; clear wavy boundary.

Bt5—67 to 80 inches; yellowish red (5YR 4/6) sandy clay loam; weak coarse and very coarse subangular blocky structure; friable; many discontinuous red (2.5YR 4/6) clay films on faces of peds; 14 percent rounded pebbles; strongly acid.

MLRA Range in Characteristics

Thickness of the loess: 0 to 18 inches

A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 2
Texture—silt loam or clay loam
Content of rock fragments—0 to 5 percent
pH range—4.5 to 6.0

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 6
Texture—clay loam
Content of rock fragments—0 to 5 percent
pH range—4.5 to 7.3

BE horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or loam
Content of rock fragments—0 to 5 percent
pH range—4.5 to 6.5

Bt horizon:
Color—hue of 7.5YR, 5YR, or 2.5YR; value of 4 or 5; and chroma of 3 to 8
Texture—loam, clay loam, or sandy clay loam or the gravelly analogs of these textures; ranges to sandy loam in the lower part
Content of rock fragments—2 to 25 percent
pH range—4.5 to 6.0

Oldenburg Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Oldenburg silt loam, on a slope of 1 percent, in a cultivated field; 800 feet west and 1,800 feet south of the northeast corner of sec. 13, T. 10 N., R. 11 E.; Franklin County, Indiana.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

Bw1—9 to 17 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; friable; many fine roots; common distinct continuous dark brown (10YR 3/3) organic coatings on faces of peds; neutral; clear wavy boundary.

Bw2—17 to 25 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure; friable; common fine roots; common continuous dark brown (10YR 4/3) organic coatings on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

Bw3—25 to 39 inches; brown (10YR 5/3) fine sandy loam; weak fine subangular blocky structure; friable; common fine roots; few discontinuous dark brown (10YR 4/3) organic coatings on faces of peds; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; gradual wavy boundary.

C1—39 to 46 inches; brown (10YR 5/3) fine sandy loam; massive; friable; few fine roots; few fine faint light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

C2—46 to 53 inches; brown (10YR 5/3) loamy sand; massive; very friable; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent pebbles; neutral; clear wavy boundary.

C3—53 to 60 inches; brown (10YR 5/3) fine sandy loam; massive; friable; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent pebbles; neutral.

Series Range in Characteristics

Depth to the base of the cambic horizon: 22 to 44 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3
Texture—silt loam or loam
Content of rock fragments—0 to 10 percent pebbles
pH range—5.1 to 7.3

Bw horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—loam, silt loam, fine sandy loam, or sandy loam; includes thin layers of loamy sand and loamy fine sand
Content of rock fragments—0 to 10 percent pebbles
pH range—5.1 to 7.3; one or more horizons at 5.6 or above

C or Cg horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 4

Texture—fine sandy loam, sandy loam, or loam; includes strata of sandy clay loam, loamy sand, gravelly loamy sand, or loamy fine sand
Content of rock fragments—0 to 14 percent pebbles
pH range—5.6 to 7.3

Pekin Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudults

Typical Pedon for the Series

Pekin silt loam, in a nearly level area in a cultivated field; 2,300 feet south and 1,400 feet west of the northeast corner of sec. 19, T. 1 S., R. 5 E.; Washington County, Indiana.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

Bt1—9 to 15 inches; light yellowish brown (10YR 6/4) silt loam; moderate medium subangular blocky structure; friable; many fine roots; many fine pores; common distinct discontinuous yellowish brown (10YR 5/4) clay films on faces of peds; neutral; clear smooth boundary.

Bt2—15 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; many fine roots; many fine pores; many distinct continuous dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; very strongly acid; clear smooth boundary.

Btx1—27 to 35 inches; yellowish brown (10YR 5/6) silty clay loam; moderate very coarse prismatic structure; firm; few fine roots; few fine pores; many distinct continuous brown (10YR 5/3) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; brittle; extremely acid; gradual wavy boundary.

Btx2—35 to 44 inches; yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure; firm; many prominent continuous gray (10YR 6/1) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; brittle; extremely acid; gradual wavy boundary.

C—44 to 60 inches; yellowish brown (10YR 5/6) silt loam; massive; firm; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; very strongly acid.

Series Range in Characteristics

Thickness of the solum: 40 to 80 inches
Depth to a fragipan: 24 to 38 inches; 10 to 20 inches in severely eroded areas

A or Ap horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4
pH range—4.5 to 5.5 in nonlimed areas; ranges to 7.3 in limed areas

Bt horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6; redoximorphic depletions present
Texture—silt loam or silty clay loam
pH range—4.5 to 5.5 in nonlimed areas; ranges to 7.3 in limed areas in the upper part

Btx or Btxg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 8
Texture—silt loam or silty clay loam
Content of rock fragments—0 to 7 percent pebbles
pH range—3.6 to 5.5

C or Cg horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 2 to 6
Texture—silt loam, loam, silty clay loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 10 percent pebbles
pH range—4.5 to 5.5; ranges to 7.3 in the lower part

Peoga Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fragic Epiaqualfs

Typical Pedon for the Series

Peoga silt loam, on a slope of 0.5 percent, in a cultivated field; 1,810 feet east and 645 feet north of the center of sec. 18, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 8 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/1) dry; weak coarse subangular blocky structure parting to moderate medium granular; friable; few very fine roots; many fine distinct brown (10YR 5/3) masses of iron accumulation in the matrix; few very fine roots; common prominent discontinuous yellowish red (5YR 5/6) pore linings; common prominent black (N 2.5/0) iron and manganese stains; krotovinas filled with brown (10YR 5/3) material; moderately acid; abrupt smooth boundary.

BEg—8 to 19 inches; light gray (10YR 7/2) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common fine prominent reddish yellow (7.5YR 6/8) and common medium brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common prominent black (N 2.5/0) iron and manganese stains in pores and root channels; krotovinas filled with brown (10YR 5/3) material; very strongly acid; gradual wavy boundary.

Btg1—19 to 27 inches; light gray (10YR 7/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few very fine roots; common distinct discontinuous light brownish gray (10YR 6/2) clay films on vertical faces of peds; common fine prominent reddish yellow (7.5YR 6/8) and common medium brownish yellow (10YR 6/6) masses of iron accumulation in the matrix; common prominent black (N 2.5/0) iron and manganese stains on vertical faces of peds; krotovinas filled with brown (10YR 5/3) material; very strongly acid; gradual wavy boundary.

Btg2—27 to 36 inches; light gray (10YR 7/2) silt loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; friable; few very fine roots between peds; many distinct continuous light brownish gray (10YR 6/2) clay films on vertical faces of peds; common fine prominent reddish yellow (7.5YR 6/8) and common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common prominent discontinuous black (N 2.5/0) iron and manganese stains on vertical faces of peds; krotovinas filled with brown (10YR 5/3) material; very strongly acid; gradual irregular boundary.

Btgx1—36 to 58 inches; 65 percent light gray (10YR 7/2) and 35 percent strong brown (7.5YR 5/6) silt loam; moderate coarse prismatic structure; firm; many distinct continuous light brownish gray (10YR 6/2) clay films on vertical faces of peds; common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common prominent discontinuous black (N 2.5/0) iron and manganese stains on vertical faces of peds; 35 percent brittle; very strongly acid; gradual wavy boundary.

Btgx2—58 to 76 inches; 65 percent light gray (10YR 7/2) and 35 percent yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure; firm; common prominent continuous light brownish gray (10YR 6/2) clay films on vertical faces of peds; 35 percent brittle; strongly acid; diffuse wavy boundary.

2Btb—76 to 80 inches; strong brown (7.5YR 5/6) silty clay loam; moderate coarse subangular blocky structure; firm; common distinct continuous light brownish gray (10YR 6/2) clay films on vertical and horizontal faces of peds; many medium prominent light gray (10YR 7/2) iron depletions in the matrix; few fine distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; common coarse irregular iron and manganese concretions; strongly acid.

Series Range in Characteristics

Thickness of the solum: 60 to more than 80 inches

A or Ap horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 3
pH range—4.5 to 5.5 in nonlimed areas; ranges to 7.3 in limed areas

Eg, EBg, or BEg horizon:
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
Texture—silt loam
pH range—3.6 to 5.5

Btg, Bt, Btxg, or Btx horizon:
Color—hue of 7.5YR to 5Y, value of 5 to 7,and chroma of 1 to 6; horizons with chroma of 4 to 6 are below a depth of 36 inches
Texture—silt loam or silty clay loam; loam or clay loam in the lower part
Content of rock fragments—0 to 2 percent pebbles
pH range—3.6 to 5.5; ranges to 6.0 in the lower part

2Btb or 2Btg horizon:
Color—hue of 10YR or 7.5YR, value of 5, and chroma of 1 to 6
Texture—silt loam, silty clay loam, clay loam, or loam
Content of rock fragments—0 to 2 percent pebbles
pH range—5.1 to 7.3

Piopolis Series

Taxonomic classification: Fine-silty, mixed, active, acid, mesic Typic Fluvaquents

Typical Pedon for the MLRA

Piopolis silty clay loam, in a nearly level, frequently flooded area in a cultivated field; 330 feet east and 2,255 feet south of the northwest corner of sec. 12, T. 6 N., R. 4 E.; Jackson County, Indiana.

Ap—0 to 10 inches; brown (10YR 5/3) silty clay loam, very pale brown (10YR 7/3) dry; weak medium subangular blocky structure parting to weak medium granular; friable; common very fine and fine roots; many fine distinct light brownish gray (10YR 6/2) iron depletions and common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many fine rounded iron and manganese oxide concretions; neutral; clear smooth boundary.

Cg1—10 to 31 inches; light gray (10YR 7/1) silty clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common very fine roots; common medium prominent reddish yellow (7.5YR 6/8) and distinct light yellowish brown (10YR 6/6) masses of iron accumulation in the matrix; many fine rounded iron and manganese oxide concretions; strongly acid; gradual wavy boundary.

Cg2—31 to 60 inches; light gray (10YR 7/1) silty clay loam; massive; firm; few very fine roots; few medium prominent reddish yellow (7.5YR 6/8) and many medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; many fine rounded iron and manganese oxide concretions; strongly acid.

MLRA Range in Characteristics

A horizon:

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2

pH range—5.1 to 6.0

Ap horizon:

Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 or 3

pH range—5.1 to 7.3

Cg horizon:

Color—hue of 10YR, 2.5Y, or N; value of 6 or 7; and chroma of 0 to 2

Texture—silty clay loam; silt loam below a depth of 40 inches

pH range—4.5 to 5.5 above a depth of 40 inches; ranges to 7.3 below a depth of 40 inches

Rarden Series

Taxonomic classification: Fine, mixed, active, mesic Aquultic Hapludalfs

Typical Pedon for the MLRA

Rarden silty clay loam (fig. 16), on a slope of 7 percent, in a cultivated field; 1,040 feet east and 560 feet north of the southwest corner of sec. 9, T. 2 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 6 inches; 80 percent dark yellowish brown (10YR 4/4) and 20 percent yellowish red (5YR 4/6) silty clay loam, pale brown (10YR 6/3) and reddish brown (5YR 5/6) dry; weak fine and medium subangular blocky structure; firm; common very fine and fine and few medium roots; slightly acid; clear wavy boundary.

2Bt1—6 to 14 inches; yellowish red (5YR 4/6) silty clay; moderate fine subangular blocky structure; firm; common very fine and fine roots between peds; many distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear wavy boundary.

2Bt2—14 to 21 inches; strong brown (7.5YR 5/6) silty clay; moderate fine and medium angular blocky structure; firm; few very fine and fine roots between peds; many prominent light olive gray (5Y 6/2) and common distinct continuous yellowish red (5YR 5/6) clay films on faces of peds; common fine prominent light olive gray (5Y 6/2) iron depletions in the matrix; extremely acid; clear wavy boundary.

2Bt3—21 to 28 inches; strong brown (7.5YR 5/6) silty clay; weak fine and medium angular blocky structure; firm; few very fine and fine roots between peds; many prominent continuous light olive gray (5Y 6/2) clay films on faces of peds; many fine prominent light olive gray (5Y 6/2) iron depletions in the matrix; extremely acid; gradual wavy boundary.

2BC—28 to 37 inches; light olive brown (2.5Y 5/4) extremely parachannery silty clay; moderate fine and medium platy structure; firm; few very fine and fine roots between peds; few prominent patchy white (10YR 8/1) barite coats on faces of peds; common fine and medium plate-like barite masses; many fine and medium distinct gray (5Y 6/1) iron depletions in the matrix; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 60 percent weakly cemented parachanners; extremely acid; gradual wavy boundary.

2Cr1—37 to 51 inches; 80 percent olive (5Y 5/3) and 20 percent olive brown (2.5Y 4/4), weakly cemented, fractured shale; very firm; few very fine roots between shale fragments; common medium distinct light olive gray (5Y 6/2) pore linings between shale fragments; very strongly acid; gradual wavy boundary.

2Cr2—51 to 60 inches; olive (5Y 4/3), moderately cemented fractured shale; very firm; common medium distinct light olive gray (5Y 6/2) pore linings between shale fragments; slightly acid.

MLRA Range in Characteristics

Depth to bedrock: 20 to 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silty clay loam or silty clay
pH range—3.6 to 7.3

Bt horizon:
Color—hue of 7.5YR, 5YR, or 2.5YR (includes thin horizons of 10YR); value of 4 or 5; and chroma of 4 to 8; iron depletions in the lower part
Texture—silty clay or silty clay loam
Content of rock fragments—0 to 5 percent pebbles and cobbles (ironstone)
Content of pararocks fragments—0 to 15 percent parachanners
pH range—3.6 to 5.5

BC or CB horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y; value of 4 or 5; and chroma of 4 to 6
Texture—parachannery to extremely parachannery analogs of silty clay or silty clay loam
Content of rock fragments—0 to 5 percent pebbles and cobbles (ironstone)
Content of pararock fragments—30 to 65 percent parachanners
pH range—3.6 to 5.5

Cr horizon:
Color—hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 or 4

Rohan Series

Taxonomic classification: Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts

Typical Pedon for the MLRA

Rohan channery silt loam, on a slope of 40 percent, in a forest; 450 feet southeast of the northwest boundary and 500 feet northeast of the southwest boundary in Clark Grant No. 297; Scott County, Indiana.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery silt loam, grayish brown (10YR 5/2 dry; moderate fine and medium granular structure; friable; common fine and medium and few coarse roots; 28 percent strongly cemented channers (shale); strongly acid; clear wavy boundary.

Bw1—4 to 10 inches; dark brown (7.5YR 3/4) channery silt loam; moderate fine subangular blocky structure; friable; common fine and medium and few coarse roots; 28 percent strongly cemented channers (shale); very strongly acid; clear wavy boundary.

Bw2—10 to 16 inches; brown (7.5YR 4/4) very channery silty clay loam; weak fine subangular blocky structure; friable; few fine and medium roots; 50 percent strongly cemented channers (shale); very strongly acid; abrupt wavy boundary.

R—16 inches; fractured, very strongly cemented black shale bedrock.

MLRA Range in Characteristics

Depth to bedrock: 10 to 20 inches

A horizon:
Color—hue of 10YR or 7.5YR, value of 2 to 5, and chroma of 2 to 4
Texture—silt loam, channery silt loam, or channery silty clay loam
Content of rock fragments—5 to 35 percent channers
pH range—4.5 to 6.0

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6
Texture—channery, very channery, or extremely channery analogs of silt loam or silty clay loam
Content of rock fragments—15 to 65 percent; 35 to 60 percent channers
pH range—3.6 to 5.5

Scottsburg Series

Taxonomic classification: Fine-silty, mixed, semiactive, mesic Aquic Hapludults

Typical Pedon for the Series

Scottsburg silt loam, on a slope of 3 percent, in a cultivated field; 570 feet east and 570 feet north of the southwest corner of sec. 28, T. 4 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 8 inches; 80 percent brown (10YR 4/3) and 20 percent yellowish brown (10YR 5/6) silt loam, pale brown (10YR 6/3) and very pale brown (10YR 7/4) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common very fine roots; strongly acid; abrupt smooth boundary.

Bt1—8 to 19 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct discontinuous strong brown (7.5YR 4/6) clay films on faces of peds; common distinct discontinuous brown (10YR 4/3) organic coatings in root channels and pores; strongly acid; gradual wavy boundary.

Bt2—19 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common distinct discontinuous dark yellowish brown (10YR 4/6) clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt3—27 to 31 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; common distinct patchy dark yellowish brown (10YR 4/6) clay films on faces of peds; common fine distinct brown (10YR 5/3) iron depletions in the matrix; very strongly acid; clear wavy boundary.

Btx1—31 to 43 inches; brown (10YR 5/3) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between peds; common distinct discontinuous grayish brown (10YR 5/2) clay films on vertical faces of peds; common fine prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 4 percent pebbles; 45 percent brittle; extremely acid; gradual wavy boundary

Btx2—43 to 53 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; many distinct continuous gray (10YR 5/1) clay films on vertical faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; common fine iron and manganese oxide concretions; 3 percent pebbles; 45 percent brittle; extremely acid; clear wavy boundary.

2BCg—53 to 61 inches; grayish brown (10YR 5/2) parachannery silty clay; weak thin platy structure; firm; common medium distinct yellowish brown (10YR 5/6) and many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 20 percent parachanners (shale); extremely acid; clear wavy boundary.

2Cr—61 to 67 inches; very dark grayish brown (10YR 3/2) and dark brown (7.5YR 4/4) fractured, weakly cemented and moderately cemented shale; extremely acid; clear wavy boundary.

2R—67 inches; very dark gray (5YR 3/1) very strongly cemented, fissile shale.

Series Range in Characteristics

Depth to bedrock: 60 to 80 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6
pH range—4.5 to 5.5

Btx horizon:
Color—hue of 10YR or 7.5YR; value of 4 to 6, and chroma of 3 to 8; redoximorphic features present
Texture—silt loam or silty clay loam
pH range—3.6 to 5.0

2BC or 2BCg horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 8
Texture—parachannery silty clay loam or parachannery silty clay
Content of pararock fragments—15 to 30 percent
pH range—3.6 to 5.0

2Cr horizon:
Color—hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 to 4

Shircliff Series

Taxonomic classification: Fine, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Shircliff silt loam, on a slope of 3 percent, in a cultivated field; 400 feet east and 750 feet north of the southwest corner of sec. 13, T. 5 S., R. 1 W.; Perry County, Indiana.

Ap—0 to 8 inches; 90 percent brown (10YR 5/3) and 10 percent yellowish brown (10YR 5/6) silt loam, very pale brown (10YR 7/3) and very pale brown (10YR 7/4) dry; weak fine subangular blocky structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

Bt1—8 to 19 inches; yellowish brown (10YR 5/6) silty clay loam; strong fine subangular blocky structure; friable; common fine roots; common distinct discontinuous dark yellowish brown (10YR 4/6) clay films on faces of peds; many patchy distinct light yellowish brown (10YR 6/4) silt coatings on faces of peds; very strongly acid; clear wavy boundary.

2Bt2—19 to 28 inches; strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; firm; common fine roots; many discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few patchy distinct light yellowish brown (10YR 6/4) silt coatings on faces of peds; very strongly acid; clear wavy boundary.

2Bt3—28 to 43 inches; dark yellowish brown (10YR 4/4) silty clay; strong coarse angular blocky structure; very firm; few fine roots; many prominent continuous light brownish gray (10YR 6/2) clay films on faces of peds; many medium distinct light gray (10YR 6/1) iron depletions in the matrix; moderately acid; clear wavy boundary.

2Btk1—43 to 53 inches; dark yellowish brown (10YR 4/4) silty clay; strong coarse angular blocky structure; very firm; few fine roots; common distinct discontinuous brown (10YR 5/3) clay films on faces of peds; few discontinuous distinct light brownish gray (10YR 6/2) clay films on faces of peds; many medium prominent light gray (10YR 6/1) iron depletions in the matrix; few medium irregular calcium carbonate nodules; slightly effervescent; moderately alkaline; clear wavy boundary.

2Btk2—53 to 59 inches; brown (10YR 5/3) silty clay loam; moderate coarse subangular blocky structure; very firm; few fine roots; common distinct discontinuous brownish gray (10YR 6/2) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few medium irregular calcium carbonate nodules; strongly effervescent; moderately alkaline; clear wavy boundary.

2Btk3—59 to 80 inches; dark yellowish brown (10YR 4/4) silty clay; strong coarse subangular blocky structure; very firm; common distinct discontinuous brown (10YR 5/3) and few prominent discontinuous prominent light gray (10YR 6/1) clay films on faces of peds; common fine distinct light gray (10YR 6/1) iron depletions in the matrix; few medium irregular calcium carbonate nodules; strongly effervescent; moderately alkaline.

Series Range in Characteristics

Depth to carbonates: 30 to 60 inches; severely eroded areas range to less than a depth of 30 inches

A or Ap horizon:

Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 3 (A); hue of 10YR, value of 4 or 5, and chroma of 2 or 3 (Ap)
Texture—silt loam or silty clay loam
pH range—5.1 to 7.3

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam
pH range—4.5 to 6.0

2Bt horizon:

Color—hue of 10YR, 2.5Y, or 7.5YR; value of 4 or 5; and chroma of 4 to 6; redoximorphic depletions present
Texture—silty clay loam or silty clay
pH range—4.5 to 7.8

2Btk, 2BCk, 2Btgk, or 2BCgk horizon:

Color—hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 2 to 4
Texture—silty clay; includes silty clay loam or silt loam
pH range—7.9 to 8.4

Spickert Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Fragiudults

Typical Pedon for the Series

Spickert silt loam, on a slope of 9 percent, in a forested area; 1,190 feet east and 1,320 feet south of the center of sec. 28, T. 7 N., R. 2 E.; Jackson County, Indiana.

Oi—0 to 2 inches; partially decomposed leaves from mixed deciduous trees.

Ap—2 to 7 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium granular structure; friable; many fine and medium and few coarse roots; very strongly acid; clear smooth boundary.

Bt1—7 to 21 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; common distinct discontinuous brown (7.5YR 5/4) clay films on the faces of peds; common fine black (10YR 2/1) iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Bt2—21 to 28 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; few prominent pale yellow (2.5Y 7/4) silt coatings on faces of peds; common fine black (10YR 2/1) iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

Bt3—28 to 31 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; common fine and medium roots; common distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; many distinct light gray (10YR 7/1) clay depletions on faces of peds; common fine black (10YR 2/1) iron and manganese oxide concretions; very strongly acid; clear wavy boundary.

2Btx1—31 to 49 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure; very firm; few fine roots between peds; common fine vesicular pores; many prominent continuous gray (10YR 6/1) clay films on faces of peds; few prominent light gray (10YR 7/1) clay depletions on faces of peds; few fine black (10YR 2/1) iron and manganese oxide concretions; 2 percent channers; brittle; very strongly acid; gradual wavy boundary.

2Btx2—49 to 58 inches; brownish yellow (10YR 6/6) silt loam; weak medium and coarse subangular blocky structure; firm; few distinct patchy yellowish brown (10YR 5/4) clay films on faces of peds; few prominent light gray (2.5Y 7/2) iron depletions in the matrix; 5 percent channers; brittle; very strongly acid; gradual wavy boundary.

2CB—58 to 64 inches; brownish yellow (10YR 6/6) channery silt loam; massive; friable; common medium prominent light gray (2.5Y 7/2) iron depletions in the matrix; 20 percent channers; extremely acid; clear wavy boundary.

2R—64 to 70 inches; fractured, very strongly cemented siltstone.

Series Range in Characteristics

Depth to bedrock: 50 to 72 inches
Depth to a fragipan: 20 to 36 inches

Ap horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6

A horizon:
Thickness—2 to 4 inches
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
pH range—3.6 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam or silty clay loam
pH range—4.5 to 6.0

2Btx horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam or silty clay loam
Content of rock fragments—1 to 14 percent channers
pH range—4.5 to 5.0

2BC or 2CB horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 to 6
Texture—silt loam or silty clay loam or the channery or very channery analogs of these textures
Content of rock fragments—10 to 50 percent channers
pH range—3.6 to 5.0

Steff Series

Taxonomic classification: Fine-silty, mixed, active, mesic Fluvaquentic Dystrudepts

Typical Pedon for the MLRA

Steff silt loam, on a slope of 1 percent, in a cultivated field; 595 feet west and 65 feet north of the center of sec. 32, T. 3 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 11 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR 7/4) dry; weak coarse subangular blocky structure parting to moderate medium granular; friable; common very fine, fine, and few medium roots; moderately acid; abrupt smooth boundary.

Bw1—11 to 23 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure; friable; common very fine and fine roots; common distinct discontinuous yellowish brown (10YR 5/4) organic coatings on faces of peds; common fine distinct pale brown (10YR 6/3) and few light brownish gray (10YR 6/2) iron depletions in the matrix; few prominent discontinuous strong brown (7.5YR 5/8) iron stains on faces of peds; common fine rounded iron and manganese oxide concretions; strongly acid; clear wavy boundary.

Bw2—23 to 41 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure; friable; few very fine roots; few distinct discontinuous yellowish brown (10YR 5/4) organic coatings on faces of peds; many medium distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common prominent discontinuous strong brown (7.5YR 5/8) iron stains on faces of peds; very strongly acid; gradual wavy boundary.

C—41 to 60 inches; yellowish brown (10YR 5/6) silt loam; massive; friable; many medium distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; common distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common prominent discontinuous strong brown (7.5YR 4/6) iron stains lining pores; strongly acid.

MLRA Range in Characteristics

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
pH range—4.5 to 7.3

Bw or Bg horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 6 (2 chroma is below a depth of 20 inches)
Texture—silt loam
pH range—4.5 to 5.5

C or Cg horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 6
Texture—silt loam; includes strata of sandy loam or loam below a depth of 40 inches
pH range—4.5 to 5.5

Stendal Series

Taxonomic classification: Fine-silty, mixed, active, acid, mesic Fluventic Endoaquepts

Typical Pedon for the Series

Stendal silt loam, on a slope of 0.5 percent, in a cultivated field; 395 feet west and 1,400 feet north of the southeast corner of sec. 29, T. 3 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 8 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR 7/4) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; common very fine roots; slightly acid; abrupt smooth boundary.

C—8 to 17 inches; light yellowish brown (10YR 6/4) silt loam; weak coarse prismatic structure; friable; common very fine roots; common distinct continuous yellowish brown (10YR 5/4) organic coatings on faces of peds; many medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; common fine distinct brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; few fine rounded iron and manganese oxide concretions; very strongly acid; gradual wavy boundary.

Cg1—17 to 40 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse prismatic structure; friable; few very fine roots; few distinct continuous yellowish brown (10YR 5/4) organic coatings on vertical faces of peds; many medium prominent light yellowish brown (10YR 6/4) and common yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; common fine rounded and few medium irregular iron and manganese oxide concretions; very strongly acid; gradual smooth boundary.

Cg2—40 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; firm; many medium prominent strong brown (7.5YR 5/8) and common distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common medium irregular and few medium irregular iron and manganese concretions; very strongly acid.

Series Range in Characteristics

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 1 or 2 (A); hue of 10YR, value of 4 or 5, and chroma of 2 to 4 (Ap)
pH range—4.5 to 5.5 in nonlimed areas; ranges to 7.3 in limed areas

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6; iron depletions present
Texture—silt loam or silty clay loam
pH range—4.5 to 5.5

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 to 6; horizons with chroma of 3 or more are below depth of 40 inches
Texture—silt loam or silty clay loam; includes strata of sandy loam, loam, and fine sandy loam below a depth of 40 inches
pH range—4.5 to 5.5

Stonehead Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Stonehead silt loam, on a slope of 10 percent, in an idle field; 230 feet south and 1,020 feet east of the center of sec. 23, T. 5 N., R. 4 E.; Jackson County, Indiana.

Ap—0 to 5 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate fine granular structure; friable; slightly acid; abrupt smooth boundary.

Bt1—5 to 11 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; common faint discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; many yellowish brown (10YR 5/4) wormcasts; strongly acid; clear wavy boundary.

Bt2—11 to 19 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; many distinct discontinuous dark yellowish brown (10YR 4/6) clay films on faces of peds; few distinct continuous very pale brown (10YR 7/3) silt coatings on faces of peds; very strongly acid; clear wavy boundary.

Bt3—19 to 24 inches; brown (7.5YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct discontinuous yellowish brown (10YR 5/4) clay films on faces of peds; many prominent discontinuous very pale brown (10YR 7/3) silt coatings on faces of peds; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; very strongly acid; clear wavy boundary.

Bt4—24 to 30 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; many distinct discontinuous pale brown (10YR 6/3) clay films on faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; very strongly acid; clear wavy boundary.

2Bt5—30 to 39 inches; red (2.5YR 4/6) silty clay; moderate fine and medium angular blocky and subangular blocky structure; very firm; many prominent continuous light olive gray (5Y 6/2) clay films on faces of peds and gray (10YR 5/1) clay films in root channels; many fine prominent light olive gray (5Y 6/2) masses of iron accumulation in the matrix; 2 percent pebbles (ironstone); very strongly acid; gradual wavy boundary.

2Bt6—39 to 46 inches; yellowish red (5YR 5/6) silty clay; weak thick platy structure parting to moderate fine angular blocky; very firm; many prominent continuous light olive gray (5Y 6/2) clay films on faces of peds and light brownish gray (10YR 6/2) clay films in root channels; many fine prominent light olive gray (5Y 6/2) iron depletions in the matrix; common fine faint yellowish red (5YR 4/6) masses of iron accumulation in the matrix; 2 percent pebbles (ironstone); strongly acid; gradual wavy boundary.

2BC1—46 to 55 inches; light yellowish brown (2.5Y 6/4) and yellowish brown (10YR 5/4) parachannery silty clay loam; weak thick platy structure parting to weak fine angular blocky; very firm; many fine distinct light olive gray (5Y 6/2) and greenish gray (5GY 6/1) iron depletions in the matrix; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 20 percent parachanners; 2 percent pebbles (ironstone); strongly acid; gradual wavy boundary.

2BC2—55 to 65; light olive brown (2.5Y 5/4) extremely parachannery silty clay loam; moderate thick platy structure parting to weak fine subangular blocky; very firm; many fine prominent greenish gray (5G 6/1) iron depletions in the matrix; 60 percent parachanners up to 6 inches in length; 10 percent pebbles (ironstone); strongly acid; gradual wavy boundary.

2Cr—65 to 80 inches; olive (5Y 5/4) weakly cemented shale; many medium prominent greenish gray (5G 6/1) coatings between fragments; 10 percent pebbles (ironstone); slightly acid.

Series Range in Characteristics

Depth to bedrock: 44 to 75 inches

Ap horizon:

Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6

A horizon:

Thickness—2 to 5 inches
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
pH range—4.5 to 7.3

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam or silty clay loam
pH range—3.6 to 5.5

2Bt horizon:

Color—hue of 2.5Y, 10YR, 7.5YR, 5YR, or 2.5YR; value of 4 to 6; and chroma of 4 to 8; redoximorphic depletions present
Texture—silty clay or silty clay loam or the parachannery analogs of these textures; less commonly clay
pH range—4.5 to 5.5

2BC horizon:

Color—hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 4 to 6; redoximorphic depletions present
Texture—parachannery to extremely parachannery analogs of silty clay loam
pH range—4.5 to 5.5

2Cr horizon:
Color—hue of 10YR, 5Y, or 2.5Y; value of 5 or 6; and chroma of 3 or 4
pH range—4.5 to 6.5

Trappist Series

Taxonomic classification: Fine, mixed, semiactive, mesic Typic Hapludults

Typical Pedon for the MLRA

Trappist silt loam (fig. 17), on a slope of 16 percent, in a forest; 460 feet east and 1,520 feet north of the center of sec. 10, T. 4 N., R. 7 E.; Scott County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves.
A—1 to 3 inches; dark brown (10YR 3/3) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many fine and common coarse roots; very strongly acid; abrupt wavy boundary.
E—3 to 6 inches; light yellowish brown (10YR 6/4) silt loam; weak medium and coarse subangular blocky structure; friable; common fine and medium roots; few distinct discontinuous dark grayish brown (10YR 4/2) organic coatings in root channels and pores; very strongly acid; clear wavy boundary.
Bt1—6 to 11 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium and coarse subangular blocky structure; friable; common fine and medium roots; few distinct discontinuous strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear wavy boundary.
Bt2—11 to 22 inches; strong brown (7.5YR 5/6) silty clay; moderate medium angular blocky structure; firm; common fine and medium roots between peds; many distinct continuous strong brown (7.5YR 4/6) clay films on faces of peds; common distinct continuous brownish yellow (10YR 6/6) silt coatings on faces of peds; very strongly acid; clear wavy boundary.
Bt3—22 to 30 inches; yellowish brown (10YR 5/6) silty clay; moderate medium angular blocky structure; firm; few medium and common very fine and fine roots between peds; many distinct continuous strong brown (7.5YR 5/6) clay films on faces of peds; many distinct light yellowish brown (10YR 6/4) silt coatings on faces of peds; very strongly acid; clear wavy boundary.
BC—30 to 35 inches; yellowish brown (10YR 5/6) very parachannery silty clay loam; many medium prominent light olive gray (5Y 6/2) and common faint strong brown (7.5YR 5/6) mottles; moderate thick platy structure parting to moderate fine angular blocky; firm; common very fine roots between peds; very strongly acid; 35 percent parachanners (shale); clear wavy boundary.
Cr—35 to 40 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent strong brown (7.5YR 5/8) weakly cemented shale; common prominent continuous light gray (2.5Y 7/2) coatings on pararock fragments; very strongly acid; gradual wavy boundary.
R—40 to 60 inches; 60 percent very dark gray (10YR 3/1) and 40 percent yellowish brown (10YR 5/4) fractured, very strongly cemented shale.

MLRA Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:
Thickness—1 to 3 inches
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—silt loam
pH range—4.5 to 5.5

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8
Texture—silty clay loam or silty clay or the parachannery analogs of these textures
Content of pararock fragments—0 to 30 percent parachanners (shale)
pH range—3.6 to 5.5

BC or CB horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8
Texture—silty clay loam or silty clay or the parachannery to extremely parachannery analogs of these textures
Content of pararock fragments—10 to 70 percent parachanners (shale)
pH range—3.6 to 5.5

Wakeland Series

Taxonomic classification: Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

Typical Pedon for the Series

Wakeland silt loam, in a nearly level area in a cultivated field; 2,000 feet southwest of the east corner and 1,000 feet northwest of the southeast boundary of donation 187, T. 4 N., R. 9 W.; Knox County, Indiana.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

Cg1—7 to 23 inches; grayish brown (10YR 5/2) silt loam; weak medium granular structure; friable; common fine roots; many fine faint brown (10YR 5/3) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

Cg2—23 to 29 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable; common fine roots; common medium faint yellowish brown (10YR 5/4) masses of iron accumulation and few fine faint gray (10YR 5/1) iron depletions in the matrix; neutral; gradual wavy boundary.

Cg3—29 to 60 inches; grayish brown (10YR 5/2) silt loam; massive; friable; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid.

Series Range in Characteristics

Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4

pH range—5.6 to 7.3

C horizon (where present):

Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 or 4; redoximorphic depletions present

pH range—5.6 to 7.3

Cg horizon:

Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2

Texture—silt loam; loam, thin strata of fine sandy loam, and sandy loam below a depth of 40 inches

pH range—5.6 to 7.3

Weddel Series

Taxonomic classification: Fine-silty, mixed, active, mesic Fragic Oxyaquic Hapludalfs

Typical Pedon for the Series

Weddel silt loam, on a slope of 3 percent, in a cultivated field; 1,790 feet west and 1,050 feet north of the southeast corner of sec. 8, T. 2 N., R. 7 E.; Scott County, Indiana.

Ap—0 to 8 inches; 90 percent brown (10YR 4/3) and 10 percent yellowish brown (10YR 5/6) silt loam, pale brown (10YR 6/3) and very pale brown (10YR 7/4) dry; weak medium and coarse subangular blocky structure parting to moderate medium granular; friable; common very fine and fine roots; 2 percent pebbles; strongly acid; abrupt smooth boundary.

Bt1—8 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few very fine roots between peds; many distinct continuous brown (7.5YR 5/4) clay films on faces of peds; 1 percent pebbles; very strongly acid; clear smooth boundary.

Bt2—15 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots between peds; many faint continuous yellowish brown (10YR 5/4) clay films on faces of peds; common prominent discontinuous very pale brown (10YR 7/3) silt coatings on faces of peds; 1 percent pebbles; very strongly acid; clear smooth boundary.

Bt3—21 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots between peds; many prominent continuous grayish brown (10YR 5/2) and brown (10YR 5/3) clay films on faces of peds; common distinct discontinuous pale brown (10YR 6/3) silt coatings on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent pebbles; very strongly acid; clear wavy boundary.

2Btx—26 to 39 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse prismatic structure parting to moderate medium subangular blocky; firm; many continuous prominent grayish brown (10YR 5/2) and brown (10YR 5/3) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium irregular iron and manganese concretions; 9 percent pebbles; 85 percent brittle; very strongly acid; gradual wavy boundary.

3Bt1—39 to 53 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; many distinct continuous strong brown (7.5YR 4/6) and common prominent continuous grayish brown (10YR 5/2) clay films on faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 12 percent pebbles; very strongly acid; gradual wavy boundary.

3Bt2—53 to 66 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm; many distinct continuous strong brown (7.5YR

4/6) and common prominent continuous grayish brown (10YR 5/2) clay films on faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 14 percent pebbles; very strongly acid; gradual wavy boundary.

4BC—66 to 75 inches; light olive brown (2.5Y 5/4) parachannery silty clay; weak thick platy structure parting to moderate fine angular blocky; firm; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many fine and medium prominent light olive gray (5Y 6/2) iron depletions in the matrix; common prominent discontinuous very dark gray (N 3/0) manganese oxide stains in root channels; 20 percent parachanners (shale); very strongly acid; gradual wavy boundary.

4Cr—75 to 80 inches; light olive brown (2.5Y 5/4) fractured, weakly cemented and moderately cemented shale bedrock; common fine prominent yellowish brown (10YR 5/6) mottles; very firm; many prominent continuous light olive gray (5Y 6/2) iron depletions coating shale fragments; strongly acid.

Series Range in Characteristics

Depth to bedrock: 60 to 90 inches

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam
pH range—4.5 to 7.3

Bt or BE horizon:
Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam
Content of rock fragments—1 to 3 percent pebbles
pH range—4.5 to 5.5

2Btx horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam, silty clay loam, or clay loam
Content of rock fragments—2 to 10 percent pebbles
pH range—4.5 to 5.0

3Bt horizon:
Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4 to 8
Texture—silty clay loam, clay loam, or clay
Content of rock fragments—5 to 14 percent pebbles
pH range—4.5 to 5.5

4BC horizon:
Color—hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 3 or 4
Texture—parachannery or very parachannery analogs of silty clay loam or silty clay
Content of pararock fragments—15 to 50 percent parachanners
pH range—4.5 to 6.0

4Cr horizon:
Color—hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 3 or 4
pH range—5.1 to 6.0

Wellrock Series

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for the Series

Wellrock silt loam, on a slope of 12 percent, in a woodland; 875 feet east and 75 feet north of the center of sec. 6, T. 8 N., R. 6 E.; Brown County, Indiana.

Oi—0 to 1 inch; roots and partially decomposed leaves from mixed deciduous trees.

A—1 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many fine and medium roots; very strongly acid; clear smooth boundary.

EB—4 to 8 inches; yellowish brown (10RY 5/6) silt loam; moderate medium granular structure; friable; many fine and medium roots; extremely acid; clear wavy boundary.

Bt1—8 to 20 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; firm; common fine and medium roots; common distinct discontinuous brown (7.5YR 4/4) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt2—20 to 28 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; many distinct continuous brown (7.5YR 4/4) clay films on faces of peds; very strongly acid; clear smooth boundary.

2Bt3—28 to 36 inches; yellowish brown (10YR 5/6) silty clay loam; moderate coarse prismatic structure parting to moderate medium angular blocky; firm; few fine roots; many distinct continuous strong brown (7.5YR 4/4) clay films on faces of peds; common patchy pale brown (10YR 6/3) silt coatings on faces of peds; 3 percent parachanners; extremely acid; clear wavy boundary.

2Bt4—36 to 52 inches; yellowish brown (10YR 5/4) extremely parachannery silt loam; common medium distinct light brownish gray (2.5Y 6/2) mottles; weak fine subangular blocky structure; friable; common distinct discontinuous dark yellowish brown (10YR 4/4) clay films on faces of peds; 60 percent parachanners; very strongly acid; clear smooth boundary.

2Cr—52 to 60 inches; yellowish brown (10YR 5/4) fractured, moderately cemented siltstone interbedded with thin layers of weakly cemented shale and very strongly cemented siltstone.

Series Range in Characteristics

Depth to bedrock: 40 to 60 inches

Ap horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

A horizon:

Thickness—1 to 5 inches
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—silt loam
pH range—4.5 to 7.3

EB, BE, or E/A horizon:

Color—hue of 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam
pH range—3.6 to 6.5

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—silt loam or silty clay loam
pH range—3.6 to 5.0

2Bt or 2BC horizon:

Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6
Texture—silt loam or silty clay loam or the parachannery to extremely parachannery analogs of these textures
Content of pararock fragments—10 to 65 percent
pH range—3.6 to 5.0

2Cr horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 to 6

Whitcomb Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Paleaquults

Typical Pedon for the Series

Whitcomb silt loam, on a slope of 1 percent, in a pasture field; 210 feet east and 180 feet south of the center of sec. 30, T. 4 N., R. 7 E.; Scott County, Indiana.

A—0 to 2 inches; brown (10YR 4/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine granular structure; friable; many very fine and fine roots; moderately acid; abrupt smooth boundary.

Ap—2 to 9 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium granular structure; friable; common very fine and fine roots; common fine faint light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common medium irregular iron and manganese oxide concretions; 2 percent pebbles; moderately acid; abrupt smooth boundary.

BE—9 to 15 inches; light yellowish brown (10YR 6/4) silt loam; weak fine subangular blocky structure; friable; common very fine roots; common fine prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common medium distinct light gray (10YR 7/2) iron depletions in the matrix; common fine irregular iron and manganese oxide concretions; 2 percent pebbles; extremely acid; clear wavy boundary.

Btg1—15 to 22 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few very fine roots between peds; many distinct continuous light brownish gray (10YR 6/2) clay films on faces of peds; many medium distinct light yellowish brown (10YR 6/4) and common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few fine irregular iron and manganese oxide concretions; 2 percent pebbles; extremely acid; clear wavy boundary.

Btg2—22 to 30 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between peds; many distinct continuous gray (10YR 6/1) clay films on faces of peds; many medium prominent strong brown (7.5YR 5/8) and common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; common medium irregular iron and manganese oxide concretions; 2 percent pebbles; extremely acid; gradual wavy boundary.

Btgx1—30 to 37 inches; gray (10YR 6/1) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; many distinct continuous gray (10YR 6/1) and (10YR 5/1) clay films on faces of peds; few prominent discontinuous very dark gray (N 3/0) manganese stains on faces of peds and in pores; many medium prominent strong brown (7.5YR 5/8) and few medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; 2 percent pebbles; 40 percent brittle; extremely acid; clear wavy boundary.

Btgx2—37 to 48 inches; gray (10YR 6/1) silty clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; common prominent continuous gray (10YR 5/1) clay films on faces of peds; few prominent discontinuous very dark gray (N 3/0) manganese stains on faces of peds and in pores; many coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 2 percent pebbles; 50 percent brittle; extremely acid; gradual wavy boundary.

2Btg—48 to 56 inches; gray (10YR 6/1) silty clay; weak medium subangular blocky structure; firm; few prominent discontinuous gray (10YR 5/1) clay films; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 2 percent pebbles; extremely acid; clear wavy boundary.

2BCg—56 to 61 inches; 60 percent light brownish gray (10YR 6/2) and 30 percent pinkish gray (7.5YR 6/2) very parachannery silty clay loam; moderate thick platy structure; firm; many medium distinct brown (7.5YR 4/4) and few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 40 percent parachanners; extremely acid; abrupt wavy boundary.

2R—61 inches; very dark gray (10YR 3/1) very strongly cemented, fissle shale.

Series Range in Characteristics

Depth to bedrock: 60 to 80 inches

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
pH range—4.5 to 7.3

BE horizon:
Color—hue of 10YR, value of 6, and chroma of 3 to 6
pH range—3.6 to 5.0

Btg horizon:
Color—hue of 10YR, value of 6 or 7, and chroma of 1 or 2
Texture—silt loam or silty clay loam
pH range—3.6 to 5.0

Btgx horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 1 or 2
Texture—silty clay loam
pH range—3.6 to 5.0

2BCg or 2Btg horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 1 or 2
Texture—parachannery to extremely parachannery analogs of silty clay loam or silty clay
pH range—3.6 to 5.0

Wilbur Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Wilbur silt loam, in a nearly level area in a cultivated field; 2,140 feet north and 1,320 feet east of the southwest corner of donation 99, T. 1 S., R. 10 W.; Gibson County, Indiana.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; neutral; clear smooth boundary.

Bw1—7 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; few fine distinct brown (10YR 5/3) mottles; weak fine subangular blocky structure; friable; few fine roots; neutral; gradual smooth boundary.

Bw2—17 to 32 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Cg—32 to 60 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; many fine prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; common dark yellowish brown iron and manganese stains lining pores; neutral.

Series Range in Characteristics

A or Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 2 to 4
pH range—5.6 to 7.3; depends upon liming history

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
pH range—5.6 to 7.3

C or Cg horizon:
Color—hue of 10YR, value of 4 to 6, and chroma 2 to 6
Texture—silt loam; loam and thin strata of fine sandy loam or sandy loam below a depth of 40 inches
pH range—5.6 to 7.3

Wilhite Series

Taxonomic classification: Fine, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon for the Series

Wilhite silty clay loam, on a slope of 0.5 percent, in a cultivated field; 1,380 feet south and 1,400 feet east of the northwest corner of sec. 19, T. 1 N., R. 8 W.; Pike County, Indiana.

Ap—0 to 9 inches; dark gray (10YR 4/1) silty clay loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; firm; common fine roots; neutral; abrupt smooth boundary.

BA—9 to 17 inches; dark gray (10YR 4/1) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; few fine faint brown (10YR 4/3) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bg1—17 to 26 inches; gray (10YR 5/1) silty clay; weak medium prismatic structure parting to moderate coarse angular blocky; very firm; few fine roots; common medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; krotovinas about 1 foot to 1.5 feet apart filled with dark gray (10YR 4/1) silty clay loam; strongly acid; clear smooth boundary.

Bg2—26 to 38 inches; gray (10YR 5/1) silty clay; weak medium prismatic structure parting to moderate coarse angular blocky; very firm; few fine roots; thin discontinuous dark gray (10YR 4/1) organic coatings on faces of peds; many medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; krotovinas about 1 foot to 1.5 feet apart filled with dark gray (10YR 4/1) silty clay loam; strongly acid; clear smooth boundary.

BCg—38 to 47 inches; dark gray (10YR 4/1) silty clay; weak coarse subangular blocky structure; very firm; common distinct discontinuous gray (N 5/0) organic coatings on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; krotovinas about 1 foot to 1.5 feet apart filled with dark gray (10YR 4/1) silty clay loam; strongly acid; gradual smooth boundary.

Cg—47 to 60 inches; gray (10YR 6/1) and grayish brown (2.5Y 5/2) silty clay; massive; very firm; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine and medium black (10YR 2/1) iron and manganese oxide concentrations; krotovinas about 1 foot to 1.5 feet apart filled with dark gray (10YR 4/1) silty clay loam; moderately acid.

Series Range in Characteristics

A or Ap horizon:
Color—hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 to 3
Texture—silty clay loam or silty clay
pH range—5.1 to 7.3

Bg, BA, or BCg horizon:
Color—hue of 10YR to 5Y or N, value of 4 to 6, and chroma of 0 to 2
Texture—silty clay loam or silty clay
pH range—5.1 to 7.3

Cg horizon:
Color—hue of 10YR to 5Y or N, value of 4 to 6, and chroma of 0 to 2
Texture—silty clay loam or silty clay
pH range—5.1 to 7.3

Wirt Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon for the Series

Wirt silt loam, in a nearly level area in a pasture field; 30 feet south and 600 feet west of the northeast corner of sec. 24, T. 3 N., R. 8 E.; Jefferson County, Indiana. **(questioned that loam is the first horizon???)**

Ap—0 to 8 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; moderate medium granular structure, weak thin platy in the lower part; friable; many fine roots; neutral; clear smooth boundary.

Bw1—8 to 15 inches; brown (10YR 4/3) silt loam; common fine distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; common fine roots; few distinct discontinuous dark brown (10YR 3/3) organic coatings on faces of peds; neutral; gradual smooth boundary.

Bw2—15 to 22 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct discontinuous dark brown (10YR 3/3) organic coatings on faces of peds; neutral; gradual wavy boundary.

Bw3—22 to 38 inches; dark yellowish brown (10YR 4/6) loam; few fine distinct light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; friable; many distinct discontinuous dark brown (10YR 3/3) organic coatings on faces of peds; neutral; gradual wavy boundary.

C1—38 to 50 inches; dark yellowish brown (10YR 4/6) sandy loam; common fine distinct pale brown (10YR 6/3) mottles; massive; friable; 1 percent pebbles; neutral; gradual wavy boundary.

C2—50 to 60 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; massive; friable; 25 percent pebbles; neutral.

Series Range in Characteristics

A or Ap horizon:

Color—hue of 10YR, value of 2 or 3, and chroma of 2 or 3 (A); hue of 10YR, value of 3 to 5, and chroma of 3 or 4 (Ap)

Texture—silt loam or loam

pH range—5.6 to 7.3

Bw or BC horizon:

Color—hue of 10YR, value of 3 to 5, and chroma of 3 to 6

Texture—silt loam, loam, fine sandy loam, sandy loam, or very fine sandy loam

Content of rock fragments—0 to 14 percent pebbles

pH range—5.6 to 7.3

C horizon:

Color—hue of 10YR, value of 3 to 5, and chroma of 3 to 6

Texture—loam, fine sandy loam, or sandy loam; strata of loamy fine sand or loamy sand or the gravelly or very gravelly analogs of these textures below a depth of 40 inches

Content of rock fragments—0 to 35 percent pebbles

pH range—5.6 to 7.3

Wrays Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Hapludults

Typical Pedon for the Series

Wrays silt loam, on a slope of 13 percent, in a forest; 850 feet east and 1,900 feet north of the center of sec. 35, T. 2 N., R. 6 E.; Scott County, Indiana.

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.

E/A—1 to 6 inches; 85 percent light yellowish brown (10YR 6/4) and 15 percent dark grayish brown (10YR 4/2) silt loam, very pale brown (10YR 8/4) and light brownish gray (10YR 6/2) dry; weak fine and medium subangular blocky structure parting to moderate medium granular; friable; many very fine and fine, common medium and coarse, and few very coarse roots; very strongly acid; gradual wavy boundary.

Bt1—6 to 12 inches; strong brown (7.5YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; common very fine and fine, common medium and coarse, and few very coarse roots throughout; few distinct patchy strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear wavy boundary.

Bt2—12 to 25 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine and fine, common medium and coarse roots between peds, and few very coarse roots throughout; many distinct continuous strong brown (7.5YR 4/6) clay films on faces of peds; very strongly acid; gradual wavy boundary.

2Bt3—25 to 34 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; few very fine and fine roots and common medium roots between peds; many prominent continuous strong brown (7.5YR 5/6) and common distinct discontinuous pale brown (10YR 6/3) clay films on faces of peds; 10 percent channers; very strongly acid; clear wavy boundary.

2CB—34 to 44 inches; light yellowish brown (2.5Y 6/4) extremely channery silt loam; moderate very thick platy structure; firm; few very fine and fine roots between peds; common distinct discontinuous light brownish gray (2.5Y 6/2) clay films on rock fragments; common prominent continuous strong brown (7.5YR 4/6) iron stains on faces of peds; 65 percent channers; very strongly acid; clear wavy boundary.

2R—44 inches; fractured, very strongly cemented siltstone bedrock.

Series Range in Characteristics

Depth to bedrock: 40 to 60 inches

E/A or A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3 (A); hue of 10YR, value of 5 or 6, and chroma of 4 to 6 (E)
pH range—4.5 to 7.3

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—silt loam or silty clay loam
pH range—4.5 to 6.5

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—silt loam or silty clay loam or the channery analogs of these textures
Content of rock fragments—2 to 25 percent
pH range—3.6 to 5.0

2CB2 and BC horizons:
Color—hue of 10YR, 7.5YR, or 2.5Y; value of 4 to 6; and chroma of 4 to 8
Texture—channery, very channery, or extremely channery silt loam or silty clay loam
Content of rock fragments—20 to 65 percent
pH range—3.6 to 5.0

Formation of the Soils

This section explains the major factors of soil formation that affected the soils in Scott County and describes the processes of soil formation.

Factors of Soil Formation

Soil forms through processes acting on deposited or accumulated geologic material. The characteristics of the soil at any given point are determined by: 1) the physical and mineralogical composition of the parent material; 2) the climate under which the soil formed; 3) the plant and animal life on and in the soil; 4) the relief, or lay of the land; and 5) the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941).

Parent material greatly affects the kind of soil profile that forms. Climate and plant and animal life, chiefly plants, are active factors of soil formation. They act on the parent material that have accumulated through the weathering of rocks and slowly change it to a natural body that has genetically related horizons. Relief conditions the effects of climate and plant and animal life. Finally, time is needed for the transformation of the parent material into a soil. Some time is always required for the differentiation of soil horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effects of any one factor unless conditions are specified for the other four.

Parent Material and Geology

Dr. Stanley M. Totten, professor of geology, Hanover College, helped prepare this section.

The soils in Scott County formed in a large variety of parent materials and on a large variety of landforms. Some soils formed in unconsolidated gravel, sand, silt, and clay deposited by glaciers, streams, and the wind. Much of the fine grained parent material of the soils formed in a large, shallow lake. Some soils formed in material weathered from shale, siltstone, and limestone bedrock. The unconsolidated surficial materials are of variable thickness, ranging from 0 to more than 30 feet thick. Thus, bedrock is sufficiently close to the surface to exert influence on soil formation over extensive areas of the county. The upper part of many of the soils formed in a different kind of material than the lower part, and many soils formed in two to four kinds of parent material.

The bedrock exposed in Scott County belongs to the Devonian and Mississippian Systems of the Paleozoic Era, and ranges in age from about 350 to 400 million years. These rocks consist of shale, siltstone, and limestone that originated as fine grained sediments in warm, shallow marine waters, which covered much of the North American continent. From the Cincinnati Arch westward toward the Illinois Basin, all bedrock units dip gently (about 20 to 25 feet per mile). As a result, the rock units are successively younger from east to west. The relatively old New Albany shale of Devonian age occurs mainly in the eastern and northern parts of the county, and the relatively young New Providence and Spickert Knob Formations occur mainly in the western and southwestern parts. Differential erosion of the dipping rocks has resulted in the development of three physiographic provinces. The Muscatatuck Regional Slope in the southeastern corner of the county and the Scottsburg Lowland, which covers the remainder of the county except for the southwestern corner, developed in the more easily eroded shales of the New Albany and New Providence Formations. The Norman Upland Province, which consists of higher elevations and steeper slopes in the southwestern corner, developed in the more resistant and massive siltstones of the Spickert Knob Formation. Separating the Norman Upland from the Scottsburg Lowland is the Knobstone Escarpment, the most prominent topographic feature in Indiana. In Scott County, this escarpment has an average height of about 320 feet. Elevations in Scott County range from about 520 feet above sea level at East Fork Muscatatuck River, where it flows westward from the county, to about 1,017 feet above sea level in the knobs near the Scott County-Washington County line.

The oldest rocks in Scott County, the Jeffersonville and North Vernon Formations of the Devonian System, consist of relatively resistant limestones that crop out in the eastern part of the county along valley sides and valley floors of Stucker Fork and its tributaries and along the Muscatatuck River and its tributaries. Soils that have formed in residuum from these limestones are rare and insignificant in Scott County.

The New Albany shale, which occurs over the eastern two-thirds of the county and generally east of US Highway 31, consists of five closely related members. From older to younger, these members are Blocher, Selmier, Morgan Trail, Camp Run, and Clegg Creek, which differ slightly in color and weathering characteristics. The Blocher, Morgan Trail, and Clegg Creek members are dominated by brownish black, hard, brittle shale that contains much carbonaceous matter. Trappist, Rohan, and Jessietown soils formed in residuum from these members. Scottsburg and Whitcomb soils are in places where most of the residuum has been removed by the glaciers. These soils formed in a thin mantle of loess, pedisediment, and a thin layer of residuum from these members. The Selmier and Camp Run members consist of weakly resistant, greenish gray and brownish black shale and mudstone. Deputy soils formed in the loess-covered residuum of these members. Jennings soils formed in places where residuum of all the members is covered with a thin mantle of loess and till.

The Rockford Formation of Mississippian age consists of a thin bed of limestone that serves as a marker bed between the brownish black New Albany shale, below the greenish gray New Providence shale. This formation has insufficient thickness or outcrop extent to be the parent material of any of the soils.

The New Providence Formation of Mississippian age consists of greenish gray shale at the base of the Knobstone Escarpment in the southwestern part of Scott County. The soft shales of this unit, and of the overlying units that crop out in the escarpment, are frequently referred to as “soapstone” because of the slippery or slick feel resulting from mica and a high clay content. The Deam and Rarden soils are formed in this shale residuum. The lower part of the solum of most of the Coolville, Stonehead, and Weddel soils are also formed in residuum from this shale.

The prominent Knobstone Escarpment is a highly dissected one-sided, east-facing ridge. It marks the boundary between the Scottsburg Lowland on the east-northeast and the Norman Upland on the west-southwest. This escarpment in southwestern Scott County is composed of a chain of steep, highly eroded hillslopes and ravines in which gray to drab siltstone of the Spickert Knob Formation occasionally crops out. On the lower part of the escarpment, the Spickert Knob Formation is composed of gray to drab shaly siltstone formerly known as the Locust Point Formation. Kurtz and Gnawbone soils formed in residuum from the shaly siltstone. The lower part of some Coolville and Stonehead soils formed in residuum from this shaly siltstone. The upper part of the escarpment, at elevations generally exceeding 800 feet above sea level, is composed of massive gray siltstone of the upper part of the Spickert Knob Formation, formerly known as the Carwood Formation. Brownstown and Gilwood soils formed in the silty residuum derived from this unit.

In extreme west-central Scott County, along a portion of the boundary between Scott County and Washington County, is a small area where gray limestone of the Floyds Knob Member of the Edwardsville Formation crops out. Bedford soils formed in thin loess and in residuum derived from this Mississippian limestone, which is the youngest bedrock in the county.

A period of broad uplift, erosion, and weathering lasting about 340 million years followed the deposition of the shale, siltstone, and limestone bedrock. Prior to the advance of continental ice sheets into southern Indiana about a million years ago, a red, clayey material generally known as “terra rossa” and made up of clay, iron oxide, chert, and other materials formed on some of the upland surface. Remnants of this ancient weathered material are preserved beneath glacial drift and are incorporated in pre-Illinoian glacial materials. Scott County was covered by continental ice sheets at least twice, and probably several times during the Illinoian and pre-Illinoian glacial stages. These glaciers, although thin and near the southernmost limit of their advances, managed to flow over and above the Knobstone Escarpment and covered all of the county with ice. These large ice sheets modified the pre-glacial topography of Scott County only slightly, but the deposits left behind in the presence of till, outwash, lacustrine material, and loess greatly influenced soil formation.

The oldest glacial drift in the county consists of red outwash, the product of a pre-Illinoian ice advance that occurred at least 250,000 years ago, perhaps considerably earlier. This pre-Illinoian deposit consists primarily of stratified red sand and gravel in the form of short, low linear ridges concentrated in the south-central and southeastern parts of the county. These ridges are interpreted as crevasse fillings formed when meltwaters washed debris from near the terminus of a stagnant ice sheet into depressions in the ice. After retreat of the pre-Illinoian ice sheet, a period of warmer climate similar to that of the present occurred, during which a paleosol developed in the red drift. Medora soils formed in 2 to 3 feet of silty loess and in the underlying paleosol developed in the red outwash. Negley soils formed in the red paleosol on the steep backslopes of the ridges where slope processes removed most of the loess that might have accumulated.

From about 150,000 to 130,000 years ago, Indiana once again was invaded by a continental ice sheet, which covered all of the survey area. The ice sheet deposited a thin layer of till that ranges in thickness to as much as 30 feet, but is only a few feet thick in most places. This till is discontinuous and is absent on the steeper hillslopes where post-glacial sheetwash and gullying have eroded the weak unconsolidated materials. Melting of the ice sheet caused large quantities of meltwater to be discharged into streams, which deposited sand and gravel in their valleys. Outwash sand and gravel deposited in the East Fork White River valley, about 15 miles west of Scott County, dammed the Muscatatuck River and formed a large but short-lived lake in the Scottsburg Lowland. The level of the lake rose to an elevation of at least 590 feet, as evidenced by the wide distribution of lake sediments at this elevation and below. The small patches of lake sediment that occur at elevations above 590 feet probably accumulated in ice-contact lakes associated with the downwasting of a stagnant Illinoian ice sheet. At its highest extent, the lake occupied nearly all of northwestern and central Scott County, or about one-half of the total county area. Sediments consisting of silty clay and clayey silt as much as 30 feet thick were deposited in the lake. During and immediately after the retreat phase of Illinoian ice, “gritty” loess, a silty sediment picked up by the wind from meltwater flood plains farther west, was deposited in Scott County. This loess was incorporated in the lake sediment and was eroded from the steeper hillslopes, but it has remained intact on the flatter uplands of the county, where it is an important soil component.

An interglacial period, from 125,000 to 70,000 years ago, was characterized by weathering, erosion, and soil formation which are similar to present-day conditions. Ice sheets formed about 70,000 years ago in Canada, but did not reach Indiana until about 24,000 years ago. This Wisconsinan ice advance halted about 18 miles north of Scott County, but deposition of Wisconsian outwash in East Fork White River valley once again dammed the Muscatatuck River to form a temporary lake. The Wisconsinan lake level reached an elevation of about 550 feet, sufficient to flood the lower portions of the major valleys in the county. Any lake deposits that had been deposited were removed after the lake drained.

The melting of Wisconsinan ice between about 20,000 and 15,000 years ago in central Indiana resulted in the deposition of 2 to 3 feet of silty loess in Scott County. As with the older “gritty” loess of probable Illinoian age, much of the silty loess later was reworked or removed by slope processes, lake water, and streams. Weathering, sheetwash, gullying, and stream action continue to modify parts of the Scott County landscape.

Hickory and Bonnell soils formed in thick Illinoian glacial till on slopes where the loess cap is thin or absent. Avonburg, Cincinnati, Cobbsfork, and Nabb soils formed in materials consisting of, from the surface downward, silty loess, “gritty” loess, and Illinoian till. Jennings and Weddel soils formed in a similar, but thinner, stacking of silty loess, “gritty” loess, thin till, and the underlying shale residuum.

Haubstadt, Dubois, and Peoga soils formed in lacustrine (lake) sediments and in the overlying 2 to 3 feet of silty loess. These lacustrine sediments are dominantly silty and clayey in the upper part but are dominantly sandy and loamy in the lower part. Several streams transported sandy and silty sediment, which was deposited in the lake. Thus, the textures of the lake sediments vary widely. The lower part of these soils formed in a paleosol that originated during the approximately 100,000-year time span between deposition of the lake sediments and deposition of the silty loess.

Several cycles of stream erosion involving lateral planing of valleys are evident in Scott County. The wide, flat valley bottoms, most of which are now occupied by underfit streams, such as East Fork of the Muscatatuck River and Stucker Fork and their tributaries, including Big Ox Creek and Pigeon Roost Creek, probably predate continental glaciation. Modification of all pre-glacial valleys in the county occurred during and after each glacial stage, and some valleys were partially filled with till, alluvium, or lake sediment. Stream terraces, the flat remnants of former flood plains, occur in places along the margins of most valleys at elevations ranging from 6 to 40 feet above the modern flood plain.

The stream terraces along Big Ox Creek, Little Ox Creek, and Pigeon Roost Creek typically are 15 to 40 feet above the modern flood plains. The stream terraces along Hog Creek, Woods Creek, and Fourteen Mile Creek typically are 6 to 10 feet above the modern flood plain. These terraces, which predate the Wisconsinan ice advance, are underlain by silty, sandy, acid alluvium and are capped by 2 to 3 feet of silty loess of Late Wisconsinan age. Bartle and Pekin soils formed in these loess-capped alluvial materials. Near the headwaters of these valleys at the front (east) of the escarpment, Pekin soils formed in thin alluvium and are underlain with shale and siltstone bedrock within a depth of about 8 feet.

Alluvium was deposited in the flood plains during, between, and after the periods of glaciation. The composition of the alluvium on the modern flood plains in Scott County varies, depending on the source of the alluvium, the time of deposition, proximity in the valley, and the overflow velocity of the water carrying the alluvial sediment.

Most of the alluvial sediment deposited on the broader flood plains in the county is silty and ranges from neutral to very strongly acid. Bonnie, Haymond, Steff, and Stendal soils formed in this type of sediment. Holton and Wirt soils, mainly in narrow tributaries, formed in loamy and sandy sediments washed from the hillslopes covered with glacial till. Beanblossom soils, in narrow tributaries, formed in loamy sediment over very channery sediment washed from hillslopes in the siltstone bedrock of the Norman Upland.

Climate

Climate largely determines the kind of plant and animal life on and in the soil. It also determines the amount of water available for the weathering of minerals and the translocation of soil material. Temperature determines the rate of chemical reactions in the soil. These effects tend to be uniform in relatively small areas, such as those the size of a county.

The climate in Scott County is generally cool and moist in winter and hot and humid in summer. It is presumably similar to the one that prevailed when the soils formed. The climate is nearly uniform throughout the county, and thus differences among the soils in the county are not the result of varied climatic conditions.

Plant and Animal Life

Plants have been one of the principal organisms influencing the soils in Scott County, but bacteria, fungi, earthworms, and human activities also have been important. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material in and on the soil depends on the kind of native plants that grew on the soil. The remains of these plants accumulated in the surface layer, decayed, and eventually became humus. The roots of the plants provided channels for the downward movement of water and air through the soil, and they added organic matter as they decayed. Bacteria in the soil help to break down the organic matter into plant nutrients.

The native vegetation in Scott County was mainly deciduous, mixed hardwoods. Differences in natural soil drainage and minor variations in the parent material affected the composition of the forest species. Common trees on well drained soils, such as Bonnell and Hickory soils, were yellow-poplar, white oak, red oak, hickory, elm, and sugar maple. Wet soils, such as Bonnie and Peoga soils, supported primarily sweetgum, pin oak, beech, and soft maple.

Relief

Relief has markedly influenced the soils in Scott County through its effect on natural drainage, erosion, runoff, plant cover, and soil temperature. Some soils formed in the same kind of parent material but differ mainly in drainage characteristics because of relief.

Runoff is most rapid on the steepest slopes. Low, depressional areas are often temporarily ponded. The greater the runoff rate, the greater the hazard of erosion.

Through its effect on aeration in the soil, drainage determines the major color of the soil. Water and air move freely through most well drained soils and slowly through very poorly drained soils. In Hickory soils and other soils that are well aerated, the iron and aluminum compounds that give most soils their color are reddish or brownish and are oxidized. Peoga and other poorly aerated soils that are saturated for long periods commonly are dominantly gray and have reddish and brownish masses that have accumulated iron. The soils are gray because the iron compounds are in a reduced state or have been removed from the profile.

Soils on west- and south-facing slopes generally have a warmer soil temperature than soils on north- and east-facing slopes.

Time

Generally, a long time is needed for the development of distinct soil horizons. The length of time that parent material has been in place commonly reflects the degree of profile development.

The soils in Scott County range from immature to mature. Nabb soils and other soils that formed in loess and glacial till, and Coolville, Spickert, and other soils that formed in loess over material weathered from bedrock, have been exposed to the soil-forming factors long enough for the development of distinct horizons. Haymond, Stendal, and other soils that formed in recent alluvium, however, have not been in place long enough for this kind of development. Some steep soils, such as Brownstown soils, have been exposed to the soil-forming factors for a long time but do not have distinct horizons. Most of the precipitation that has fallen on these soils has run off the surface and thus has not moved through the profile; consequently, very little weathering of minerals or translocation of soil material has occurred.

Processes of Soil Formation

Several processes have been involved in the formation of the soils in Scott County. These processes are the accumulation of organic matter; the dissolution, transfer, and removal of calcium carbonates and bases; the liberation and translocation of silicate clay minerals; and the reduction and transfer of iron. In most of the soils, more than one of these processes have helped to differentiate soil horizons.

Some organic matter has accumulated in the surface layer of all the soils in the county. The content of organic matter in many of the soils is low or moderately low.

Carbonates and bases have been leached from the upper horizons of most of the soils in the county. Leaching probably preceded the translocation of silicate clay minerals. Almost all of the carbonates and some of the bases have been leached from the A and B horizons of the well drained soils. Even in the wettest soils, some leaching is indicated by the absence of carbonates and by an acid soil reaction. Leaching of wet soils is slow because of a seasonal high water table or the slow movement of water through the profile.

Clay accumulates in pores and other voids and forms films on the surfaces along which water moves. The leaching of bases and the translocation of silicate clays are among the more important processes affecting horizon differentiation in the soils. Dubois soils are examples of soils in which translocated silicate clays have accumulated in the Bt horizon in the form of clay films. Gleying, or the reduction and transfer of iron, has occurred in all of the very poorly drained to somewhat poorly drained soils in the county. This process has had a significant effect on horizon differentiation in these naturally wet soils. A gray subsoil indicates the reduction of iron oxides. This reduction is commonly accompanied by some transfer of the iron from the upper horizons to the lower ones or completely out of the profile. Redoximorphic concentrations in some horizons indicate the segregation of iron.

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Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood plain landform. Extensive, marshy, or swampy, depressed areas of flood plains between natural levees and valley sides of terraces.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bedrock-floored plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by hard bedrock and has a slope of 0 to 8 percent.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Board foot. A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board one foot wide, one foot long, and one inch thick before finishing.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Cement rock. Shaly limestone used in the manufacture of cement.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey soil. Texture group consisting of silty clay, sandy clay, and clay soil textures.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from adjacent stands.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Clod. A compact, coherent mass of soil varying in size, usually produced by plowing, digging, or other mechanical means, especially when these operations are performed on soils that are either too wet or too dry and usually formed by compression, or breaking off from a larger unit.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Commercial forest. Forestland capable of producing 20 cubic feet or more per acre per year at the culmination of mean annual increment.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Compressible (in tables). Excessive decrease in volume of soft soil under load.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Consolidated sandstone. Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry, are not easily crushed, and cannot be textured by the usual field method.

Consolidated shale. Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deep soil. A soil that is 40 to 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune. A low mound, ridge, bank, or hill of loose, windblown, granular material (generally sand), either bare or covered with vegetation, capable of movement from place to place but always retaining its characteristic shape.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Even aged. Refers to a stand of trees in which only small differences in age occur between the individuals. A range of 20 years is allowed.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flat. A general term for a level or nearly level surface or small area of land marked by little or no relief.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Flood plain step. An essentially flat, alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface frequently modified by scour and/or deposition. May occur individually or as a series of steps.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragile (in tables). A soil that is easily damaged by use or disturbance.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciated uplands. Land areas that were previously covered by continental or alpine glaciers and that are at a higher elevation than the flood plain.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head out. To form a flower head.

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interdune. A relatively flat surface, whether sand-free or sand-covered, between dunes.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Kame terrace. A terracelike ridge consisting of stratified sand and gravel that were deposited by a meltwater stream flowing between a melting glacier and a higher valley wall or lateral moraine and that remained after the disappearance of the ice. It is commonly pitted with kettles and has an irregular ice-contact slope.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A surface marking the floor of an extinct lake, filled in by well sorted, stratified sediments.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Texture group consisting of coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, and silty clay loam soil textures.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Major land resource areas (MLRA). Geographically associated land resource areas designated by Arabic numbers and identified by a descriptive geographic name.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Microhigh. An area that is 2 to 12 inches higher than the adjacent microlow.

Microlow. An area that is 2 to 12 inches lower than the adjacent microhigh.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately deep soil. A soil that is 20 to 40 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Observed rooting depth. Depth to which roots have been observed to penetrate.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Paleosol. A soil that formed on a landscape in the past with distinctive morphological features resulting from a soil-forming environment that no longer exists at the site. The former pedogenic process was either altered because of external environmental change or interrupted by burial.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Pararock fragments. Fragments of paralithic materials, having a diameter of 2 millimeters or more; for example, parachanners and paraflagstones.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Regeneration. The new growth of a natural plant community, developing from seed.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Texture group consisting of sand and loamy sand soil textures.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Scarp. An escarpment, cliff, or steep slope of some extent along the margin of a plateau, mesa, terrace, or structural bench. A scarp may be of any height.

Scribner's log rule. A method of estimating the number of board feet that can be cut from a log of a given diameter and length.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary plain. An extensive nearly level to gently rolling or moderately sloping area that is underlain by sedimentary bedrock and that has a slope of 0 to 8 percent.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Semiconsolidated sedimentary beds. Soft geologic sediments that disperse when fragments are placed in water. The fragments are hard or very hard when dry. Determining the texture by the usual field method is difficult.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shelterwood system. A forest management system requiring the removal of a stand in a series of cuts so that regeneration occurs under a partial canopy. After regeneration, a final cut removes the shelterwood and allows the stand to develop in the open as an even-aged stand. The system is well suited to sites where shelter is needed for regeneration, and it can aid regeneration of the more intolerant tree species in a stand.

Shoulder slope. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for the range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slash. The branches, bark, treetops, reject logs, and broken or uprooted trees left on the ground after logging.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 3 percent
Very gently sloping	1 to 3 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 12 percent
Strongly sloping	12 to 18 percent
Moderately steep	18 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Classes for complex slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 3 percent
Gently undulating	1 to 4 percent
Undulating	1 to 8 percent
Gently rolling	4 to 10 percent
Rolling	4 to 16 percent
Hilly	10 to 30 percent
Steep	20 to 60 percent
Very steep	45 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil quality. Soil quality is the fitness of a specific kind of soil to function within its surroundings, support plant and animal productivity, maintain or enhance water and air quality, and support human health and habitation.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Species. A single, distinct kind of plant or animal having certain distinguishing characteristics.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A type of stream terrace, formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structural bench. A platform-like, nearly level to gently inclined erosional surface developed on resistant strata in areas where valleys are cut in alternating strong and weak layers with an essentially horizontal attitude. Structural benches are bedrock controlled, and in contrast to stream terraces, have no geomorphic implication of former, partial erosion cycles and base-level controls, nor do they represent a stage of flood-plain development following an episode of valley trenching.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

Tread. The relatively flat terrace surface that was cut or built by stream or wave action.

Understory. Any plants in a forest community that grow to a height of less than 5 feet.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley. An elongated depressional area primarily developed by stream action.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very deep soil. A soil that is more than 60 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Very shallow soil. A soil that is less than 10 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Waterspreading. Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth’s surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Wind erodibility index. The potential annual wind erosion for a given soil under a given set of field conditions. This factor is expressed as the average annual soil loss in tons per acre per year from a field area that is isolated, unsheltered, wide bare, smooth, level, loose, and noncrusted.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

NOTE: These tables are subject to revision and change, and are for general reference. For current up-to-date soils information contained in these tables for this soil survey, refer to the e-FOTG (Electronic Field Office Technical Guide) National web site.

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Scottsburg, Indiana)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 yrs in 10 will have-- Maximum temperature higher than--	2 yrs in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 yrs in 10 will have-- Less than--	2 yrs in 10 will have-- More than--	Average number of days with 0.1 inch or more	Average total snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	38.1	18.2	28.2	67	-15	31	2.85	1.40	4.11	5	5.8
February----	42.8	21.0	31.9	71	-8	47	2.81	1.27	4.13	5	5.0
March-------	54.3	31.7	43.0	81	9	186	4.59	2.49	6.44	8	3.6
April-------	65.9	41.5	53.7	87	23	419	4.18	2.34	5.81	7	0.1
May---------	75.7	51.2	63.4	91	31	726	4.46	2.65	6.09	8	0.0
June--------	84.0	60.3	72.2	96	43	965	3.77	2.11	5.24	6	0.0
July--------	87.4	64.3	75.9	98	49	1,112	4.68	2.56	6.55	7	0.0
August------	86.1	61.8	73.9	98	46	1,052	3.77	2.17	5.20	6	0.0
September---	80.1	54.6	67.4	94	35	821	3.08	1.49	4.46	5	0.0
October-----	68.5	41.8	55.2	88	23	473	3.03	1.54	4.33	5	0.0
November----	55.3	33.6	44.4	79	14	195	3.51	1.92	4.91	7	0.9
December----	43.0	24.3	33.7	69	-3	62	3.18	1.61	4.55	6	2.6
Yearly:											
Average---	65.1	42.0	53.6	---	---	---	---	---	---	---	---
Extreme---	103	-32	---	99	-17	---	---	---	---	---	---
Total-----	---	---	---	---	---	6,087	43.91	38.01	49.38	75	18.0

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Scottsburg, Indiana)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 12	Apr. 24	May 8
2 year in 10 later than--	Apr. 6	Apr. 19	May 3
5 year in 10 later than--	Mar. 26	Apr. 10	Apr. 24
First freezing temperature in fall:			
1 yr in 10 earlier than--	Oct. 18	Oct. 7	Sept. 28
2 yr in 10 earlier than--	Oct. 24	Oct. 13	Oct. 2
5 yr in 10 earlier than--	Nov. 4	Oct. 24	Oct. 9

Table 3.--Growing Season

(Recorded in the period 1961-90 at Scottsburg, Indiana)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
9 years in 10	197	175	151
8 years in 10	206	182	157
5 years in 10	221	195	168
2 years in 10	237	209	179
1 year in 10	245	216	184

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AddA	Avonburg silt loam, 0 to 2 percent slopes	6,905	5.6
AddB2	Avonburg silt loam, 2 to 4 percent slopes, eroded	728	0.6
BbhA	Bartle silt loam, 0 to 2 percent slopes	957	0.8
BbhB	Bartle silt loam, 2 to 4 percent slopes	508	0.4
BcrAW	Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration	934	0.8
BdoB	Bedford silt loam, 2 to 6 percent slopes	28	*
BfbC2	Blocher, soft bedrock substratum-Weddel silt loams, 6 to 12 percent slopes, eroded	786	0.6
BfcC3	Blocher, soft bedrock substratum-Weddel complex, 6 to 12 percent slopes, severely eroded	651	0.5
BnyD3	Bonnell clay loam, 12 to 22 percent slopes, severely eroded	1,353	1.1
BobE5	Bonnell-Hickory clay loams, 15 to 30 percent slopes, gullied	376	0.3
BodAH	Bonnie silt loam, 0 to 1 percent slopes, frequently flooded, brief duration	3,325	2.7
BodAW	Bonnie silt loam, 0 to 1 percent slopes, occasionally flooded, very brief duration	853	0.7
BvoG	Brownstown-Gilwood silt loams, 25 to 75 percent slopes	1,621	1.3
CkkB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	5,740	4.7
CldC2	Cincinnati-Blocher silt loams, 6 to 12 percent slopes, eroded	5,065	4.1
CldC3	Cincinnati-Blocher silt loams, 6 to 12 percent slopes, severely eroded	4,066	3.3
CleC5	Cincinnati-Blocher complex, 6 to 12 percent slopes, gullied	108	*
ClfA	Cobbsfork silt loam, 0 to 1 percent slopes	2,602	2.1
ComC	Coolville silt loam, 6 to 12 percent slopes	281	0.2
ComC3	Coolville silt loam, 6 to 12 percent slopes, severely eroded	200	0.2
ConD	Coolville-Rarden complex, 12 to 18 percent slopes	857	0.7
CwaAQ	Cuba silt loam, 0 to 2 percent slopes, rarely flooded	465	0.4
DbrG	Deam silty clay loam, 20 to 55 percent slopes	609	0.5
DddB2	Deputy silt loam, 2 to 6 percent slopes, eroded	1,611	1.3
DddC2	Deputy silt loam, 6 to 12 percent slopes, eroded	1,096	0.9
DddC3	Deputy silt loam, 6 to 12 percent slopes, severely eroded	576	0.5
DfnA	Dubois silt loam, 0 to 2 percent slopes	1,761	1.4
DfnB2	Dubois silt loam, 2 to 6 percent slopes, eroded	662	0.5
DfoA	Dubois-Urban land complex, 0 to 2 percent slopes	775	0.6
EepA	Elkinsville silt loam, 0 to 2 percent slopes	35	*
EepB	Elkinsville silt loam, 2 to 6 percent slopes	83	*
EepF	Elkinsville silt loam, 18 to 35 percent slopes	198	0.2
GgfD	Gilwood-Wrays silt loams, 6 to 18 percent slopes	395	0.3
GmaG	Gnawbone-Kurtz silt loams, 20 to 60 percent slopes	4,433	3.6
HccA	Haubstadt silt loam, 0 to 2 percent slopes	860	0.7
HccB2	Haubstadt silt loam, 2 to 6 percent slopes, eroded	3,790	3.1
HcdC2	Haubstadt-Shircliff silt loams, 6 to 15 percent slopes, eroded	753	0.6
HceC3	Haubstadt-Shircliff complex, 6 to 15 percent slopes, severely eroded	1,283	1.0
HcfB	Haubstadt-Urban land complex, 2 to 6 percent slopes	766	0.6
HcgAH	Haymond silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	685	0.6
HcgAQ	Haymond silt loam, 0 to 2 percent slopes, rarely flooded	175	0.1
HcgAW	Haymond silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	1,325	1.1
HeeG	Hickory loam, 25 to 50 percent slopes	199	0.2
HerE	Hickory-Bonnell complex, 12 to 25 percent slopes	4,645	3.8
HleAW	Holton silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	1,103	0.9
JaeB2	Jennings silt loam, 2 to 6 percent slopes, eroded	2,459	2.0
JafC2	Jennings-Blocher hard bedrock substratum, silt loams, 6 to 12 percent slopes, eroded	2,584	2.1
JafC3	Jennings-Blocher hard bedrock substratum, silt loams, 6 to 12 percent slopes, severely eroded	1,473	1.2
MhyA	Medora silt loam, 0 to 2 percent slopes	74	*
MhyB2	Medora silt loam, 2 to 6 percent slopes, eroded	620	0.5
MhyC2	Medora silt loam, 6 to 12 percent slopes, eroded	166	0.1
MhyC3	Medora silt loam, 6 to 12 percent slopes, severely eroded	282	0.2
NaaA	Nabb silt loam, 0 to 2 percent slopes	4,334	3.5
NaaB2	Nabb silt loam, 2 to 6 percent slopes, eroded	7,222	5.9
NamF	Negley silt loam, 18 to 35 percent slopes	141	0.1
NanD3	Negley clay loam, 12 to 22 percent slopes, severely eroded	114	*
OfbAW	Oldenburg loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	921	0.7
PcrA	Pekin silt loam, 0 to 2 percent slopes	181	0.1
PcrB2	Pekin silt loam, 2 to 6 percent slopes, eroded	2,310	1.9
PcrC2	Pekin silt loam, 6 to 12 percent slopes, eroded	313	0.3

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
PcrC3	Pekin silt loam, 6 to 12 percent slopes, severely eroded	716	0.6
PhaA	Peoga silt loam, 0 to 1 percent slopes	1,332	1.1
PlpAH	Piopolis silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration	1,455	1.2
Pml	Pits, quarry	105	*
RblC3	Rarden silty clay loam, 6 to 12 percent slopes, severely eroded	148	0.1
RblD3	Rarden silty clay loam, 12 to 18 percent slopes, severely eroded	291	0.2
RbmD5	Rarden silty clay, 6 to 18 percent slopes, gullied	104	*
RptG	Rohan-Jessietown complex, 25 to 60 percent slopes, rocky	268	0.2
SceA	Scottsburg silt loam, 0 to 2 percent slopes	444	0.4
SceB2	Scottsburg silt loam, 2 to 4 percent slopes, eroded	2,931	2.4
SoaB	Spickert silt loam, 2 to 6 percent slopes	46	*
SoaC2	Spickert silt loam, 6 to 12 percent slopes, eroded	301	0.2
StaAH	Steff silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	1,335	1.1
StaAQ	Steff silt loam, 0 to 2 percent slopes, rarely flooded	1,452	1.2
StaAW	Steff silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	1,423	1.2
StdAH	Stendal silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	4,214	3.4
StdAQ	Stendal silt loam, 0 to 2 percent slopes, rarely flooded	921	0.7
StdAW	Stendal silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	3,324	2.7
StmB2	Stonehead silt loam, 2 to 6 percent slopes, eroded	76	*
StmC	Stonehead silt loam, 6 to 12 percent slopes	376	0.3
ThaC2	Trappist silt loam, 6 to 12 percent slopes, eroded	1,050	0.9
ThbC3	Trappist silty clay loam, 6 to 12 percent slopes, severely eroded	972	0.8
ThbD5	Trappist silty clay loam, 6 to 18 percent slopes, gullied	178	0.1
ThcD3	Trappist-Rohan complex, 12 to 25 percent slopes, severely eroded	814	0.7
ThdD	Trappist-Rohan silt loams, 12 to 25 percent slopes	1,206	1.0
Uaa	Udorthents, cut and filled	1,082	0.9
W	Water	2,129	1.7
WaaAH	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	509	0.4
WaaAW	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	1,052	0.9
WedB2	Weddel silt loam, 2 to 6 percent slopes, eroded	236	0.2
WhcD	Wellrock-Gnawbone silt loams, 6 to 20 percent slopes	400	0.3
WnmA	Whitcomb silt loam, 0 to 2 percent slopes	327	0.3
WokAH	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	423	0.3
WokAW	Wilbur silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	1,090	0.9
WomAM	Wilhite silty clay loam, ponded, 0 to 1 percent slopes, frequently flooded, brief duration	349	0.3
WprAW	Wirt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration	547	0.4
WpuAH	Wirt silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	295	0.2
	Total	123,341	100.0

* Less than 0.1 percent.

Table 5.--Main Limitations and Hazards Affecting Cropland

(See text for a description of the limitations and hazards listed in this table. Only those soils that are suited for cultivated crops are listed in this table.)

Soil name and map symbol	Cropland limitations and hazards
AddA:	
Avonburg	Crusting, limited rooting depth, restricted permeability, wetness, low pH.
AddB2:	
Avonburg	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, wetness, low pH.
BbhA:	
Bartle	Crusting, limited available water capacity, limited rooting depth, restricted permeability, wetness, low pH.
BbhB:	
Bartle	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, wetness, low pH.
BcrAW:	
Beanblossom	Crusting, flooding, limited available water capacity, low pH.
BdoB:	
Bedford	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
BfbC2:	
Blocher, soft bedrock	Crusting, limited available water capacity, poor tilth, restricted permeability, water erosion, low pH.
Weddel	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
BfcC3:	
Blocher, soft bedrock	Crusting, limited available water capacity, poor tilth, restricted permeability, water erosion, low pH.
Weddel	Crusting, limited available water capacity, restricted permeability, water erosion, wetness, low pH.
BodAH:	
Bonnie	Crusting, flooding, ponding, wetness, low pH.
BodAW:	
Bonnie	Crusting, flooding, ponding, wetness, low pH.
CkkB2:	
Cincinnati	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
CldC2:	
Cincinnati	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
Blocher	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
CldC3:	
Cincinnati	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
Blocher	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.

Table 5.--Main Limitations and Hazards Affecting Cropland--Continued

Soil name and map symbol	Cropland limitations and hazards
ClfA:	
Cobbsfork	Crusting, ponding, restricted permeability, low pH.
ComC:	
Coolville	Crusting, limited available water capacity, restricted permeability, water erosion, wetness, low pH.
ComC3:	
Coolville	Crusting, limited available water capacity, restricted permeability, water erosion, wetness, low pH.
ConD:	
Coolville	Crusting, limited available water capacity, restricted permeability, water erosion, wetness, low pH.
Rarden	Crusting, limited available water capacity, restricted permeability, water erosion, wetness, low pH.
CwaAQ:	
Cuba	Crusting, low pH.
DddB2:	
Deputy	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
DddC2:	
Deputy	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
DddC3:	
Deputy	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
DfnA:	
Dubois	Crusting, limited available water capacity, limited rooting depth, restricted permeability, wetness, low pH.
DfnB2:	
Dubois	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, wetness, low pH.
EepA:	
Elkinsville	Crusting, low pH.
EepB:	
Elkinsville	Crusting, water erosion, low pH.
GgfD:	
Gilwood	Limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
Wrays	Crusting, limited available water capacity, water erosion, low pH.
HccA:	
Haubstadt	Crusting, limited available water capacity, limited rooting depth, restricted permeability, low pH.
HccB2:	
Haubstadt	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
HcdC2:	
Haubstadt	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
Shircliff	Crusting, restricted permeability, water erosion, low pH.

Table 5.--Main Limitations and Hazards Affecting Cropland--Continued

Soil name and map symbol	Cropland limitations and hazards
HceC3:	
Haubstadt	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, wetness, low pH.
Shircliff	Crusting, poor tilth, restricted permeability, water erosion, low pH.
HcgAH:	
Haymond	Crusting, flooding.
HcgAQ:	
Haymond	Crusting.
HcgAW:	
Haymond	Crusting, flooding.
HleAW:	
Holton	Crusting, flooding, wetness.
JaeB2:	
Jennings	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
JafC2:	
Jennings	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
Blocher, hard bedrock	Crusting, restricted permeability, water erosion, low pH.
JafC3:	
Jennings	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
Blocher, hard bedrock	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
MhyA:	
Medora	Crusting, limited available water capacity, limited rooting depth, restricted permeability, low pH.
MhyB2:	
Medora	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
MhyC2:	
Medora	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
MhyC3:	
Medora	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, wetness, low pH.
NaaA:	
Nabb	Crusting, limited available water capacity, limited rooting depth, restricted permeability, low pH.
NaaB2:	
Nabb	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
OfbAW:	
Oldenburg	Crusting, flooding.
PcrA:	
Pekin	Crusting, limited available water capacity, limited rooting depth, restricted permeability, low pH.

Table 5.--Main Limitations and Hazards Affecting Cropland--Continued

Soil name and map symbol	Cropland limitations and hazards
PcrB2:	
Pekin	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
PcrC2:	
Pekin	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
PcrC3:	
Pekin	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, wetness, low pH.
PhaA:	
Peoga	Crusting, ponding, restricted permeability, low pH.
PlpAH:	
Piopolis	Crusting, flooding, ponding, restricted permeability, low pH, poor tilth.
SceA:	
Scottsburg	Crusting, restricted permeability, low pH.
SceB2:	
Scottsburg	Crusting, restricted permeability, water erosion, low pH.
SoaB:	
Spickert	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
SoaC2:	
Spickert	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
StaAH:	
Steff	Crusting, flooding, low pH.
StaAQ:	
Steff	Crusting, low pH.
StaAW:	
Steff	Crusting, flooding, low pH.
StdAH:	
Stendal	Crusting, flooding, wetness, low pH.
StdAW:	
Stendal	Crusting, flooding, wetness, low pH.
StdAQ:	
Stendal	Crusting, wetness, low pH.
StmB2:	
Stonehead	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
StmC:	
Stonehead	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
ThaC2:	
Trappist	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
ThbC3:	
Trappist	Crusting, limited available water capacity, limited rooting depth, poor tilth, restricted permeability, water erosion.

Table 5.--Main Limitations and Hazards Affecting Cropland--Continued

Soil name and map symbol	Cropland limitations and hazards
ThdD:	
Trappist	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion.
Rohan	Generally unsuited.
WaaAH:	
Wakeland	Crusting, flooding, wetness, low pH.
WaaAW:	
Wakeland	Crusting, wetness.
WedB2:	
Weddel	Crusting, limited available water capacity, restricted permeability, water erosion, low pH.
WhcD:	
Wellrock	Limited available water capacity, water erosion, low pH.
Gnawbone	Crusting, limited available water capacity, limited rooting depth, restricted permeability, water erosion, low pH.
WnmA:	
Whitcomb	Crusting, limited available water capacity, restricted permeability, wetness, low pH.
WokAH:	
Wilbur	Crusting, flooding.
WokAW:	
Wilbur	Crusting, flooding.
WprAK:	
Wirt	Crusting, flooding.
WpuAH:	
Wirt	Crusting, flooding.

Table 6.--Main Limitations and Hazards Affecting Pasture

(See text for a description of the limitations and hazards listed in this table. Only soils suited to pasture are listed in this table.)

Map symbol and soil name	Pasture limitations and hazards
AddA:	
Avonburg	Low pH, limited rooting depth.
AddB2:	
Avonburg	Low pH, water erosion, limited rooting depth.
BbhA:	
Bartle	Low pH, limited rooting depth.
BbhB:	
Bartle	Low pH, water erosion, limited rooting depth.
BcrAW:	
Beanblossom	Flooding, low pH.
BdoB:	
Bedford	Low pH, water erosion, limited rooting depth.
BfbC2:	
Blocher, soft bedrock	Low pH, water erosion.
Weddel	Low pH, water erosion.
BfcC3:	
Blocher, soft bedrock	Low pH, water erosion.
Weddel	Low pH, water erosion.
BnyD3:	
Bonnell	Equipment limitation, low pH, water erosion.
BodAH:	
Bonnie	Flooding, low pH, ponding, wetness.
BodAW:	
Bonnie	Flooding, low pH, ponding, wetness.
CkkB2:	
Cincinnati	Low pH, water erosion, limited rooting depth.
CldC2:	
Cincinnati	Low pH, water erosion, limited rooting depth.
Blocher	Low pH, water erosion.
CldC3:	
Cincinnati	Low pH, water erosion, limited rooting depth.
Blocher	Low pH, water erosion.
ClfA:	
Cobbsfork	Low pH, ponding, wetness.
ComC:	
Coolville	Low pH, water erosion.
ComC3:	
Coolville	Low pH, water erosion.

Table 6.--Main Limitations and Hazards Affecting Pasture--Continued

Map symbol and soil name	Pasture limitations and hazards
ConD:	
Coolville	Equipment limitation, low pH, water erosion.
Rarden	Limited rooting depth, equipment limitation, low available water capacity, low pH, water erosion.
CwaAQ:	
Cuba	Low pH.
DddB2:	
Deputy	Low pH, water erosion.
DddC2:	
Deputy	Low pH, water erosion.
DddC3:	
Deputy	Low pH, water erosion.
DfnA:	
Dubois	Low pH, limited rooting depth.
DfnB2:	
Dubois	Low pH, water erosion, limited rooting depth.
EepA:	
Elkinsville	Low pH.
EepB:	
Elkinsville	Low pH, water erosion.
EepF:	
Elkinsville	Equipment limitation, low pH, water erosion.
GgfD:	
Gilwood	Depth to bedrock, equipment limitation, low available water capacity, low pH, water erosion.
Wrays	Equipment limitation, low pH, water erosion.
HccA:	
Haubstadt	Low pH, limited rooting depth.
HccB2:	
Haubstadt	Low pH, limited rooting depth, water erosion.
HcdC2:	
Haubstadt	Low pH, water erosion, limited rooting depth.
Shircliff	Low pH, water erosion.
HceC3:	
Haubstadt	Low pH, water erosion, limited rooting depth.
Shircliff	Low pH, water erosion.
HcgAH:	
Haymond	Flooding.
HcgAQ:	
Haymond	None.
HcgAW:	
Haymond	Flooding.

Table 6.--Main Limitations and Hazards Affecting Pasture--Continued

Map symbol and soil name	Pasture limitations and hazards
HerE:	
Hickory	Equipment limitation, low pH, water erosion.
Bonnell	Equipment limitation, low pH, water erosion.
HleAW:	
Holton	Flooding.
JaeB2:	
Jennings	Low pH, water erosion, limited rooting depth.
JafC2:	
Jennings	Low pH, water erosion, limited rooting depth.
Blocher, hard bedrock	Low pH, water erosion.
JafC3:	
Jennings	Low available water capacity, low pH, water erosion, limited rooting depth.
Blocher, hard bedrock	Low pH, water erosion.
MhyA:	
Medora	Low pH, limited rooting depth.
MhyB2:	
Medora	Low pH, water erosion, limited rooting depth.
MhyC2:	
Medora	Low pH, water erosion, limited rooting depth.
MhyC3:	
Medora	Low pH, water erosion, limited rooting depth.
NaaA:	
Nabb	Low pH, limited rooting depth.
NaaB2:	
Nabb	Low pH, water erosion, limited rooting depth.
NamF:	
Negley	Equipment limitation, low pH, water erosion.
NanD3:	
Negley	Equipment limitation, low pH, water erosion.
OfbAW:	
Oldenburg	Flooding.
PcrA:	
Pekin	Low pH, limited rooting depth.
PcrB2:	
Pekin	Low pH, water erosion, limited rooting depth.
PcrC2:	
Pekin	Low pH, water erosion, limited rooting depth.
PcrC3:	
Pekin	Low pH, water erosion, limited rooting depth.
PhaA:	
Peoga	Low pH, ponding, wetness.

Table 6.--Main Limitations and Hazards Affecting Pasture--Continued

Map symbol and soil name	Pasture limitations and hazards
PlpAH:	
Piopolis	Flooding, low pH, ponding, wetness.
RblC3:	
Rarden	Depth to bedrock, low available water capacity, low pH, water erosion.
SceA:	
Scottsburg	Low pH.
SceB2:	
Scottsburg	Low pH, water erosion.
SoaB:	
Spickert	Low pH, water erosion, limited rooting depth.
SoaC2:	
Spickert	Low pH, water erosion, limited rooting depth.
StaAH:	
Steff	Flooding, low pH.
StaAQ:	
Steff	Low pH.
StaAW:	
Steff	Flooding, low pH.
StdAH:	
Stendal	Flooding, low pH.
StdAW:	
Stendal	Flooding, low pH.
StdAQ:	
Stendal	Low pH.
StmB2:	
Stonehead	Low pH, water erosion.
StmC:	
Stonehead	Low pH, water erosion.
ThaC2:	
Trappist	Depth to bedrock, low available water capacity, low pH, water erosion.
ThbC3:	
Trappist	Depth to bedrock, low available water capacity, low pH, water erosion.
ThcD3:	
Trappist	Depth to bedrock, equipment limitation, low available water capacity, low pH, water erosion.
Rohan	Depth to bedrock, equipment limitation, low available water capacity, low pH, water erosion.
ThdD:	
Trappist	Depth to bedrock, equipment limitation, low available water capacity, low pH, water erosion.
Rohan	Depth to bedrock, equipment limitation, low available water capacity, low pH, water erosion.
WaaAH:	
Wakeland	Flooding.

Table 6.--Main Limitations and Hazards Affecting Pasture--Continued

Map symbol and soil name	Pasture limitations and hazards
WaaAW:	
Wakeland	Flooding.
WedB2:	
Weddel	Low pH, water erosion.
WhcD:	
Wellrock	Equipment limitation, low pH, water erosion.
Gnawbone	Depth to bedrock, equipment limitation, low pH, water erosion.
WnmA:	
Whitcomb	Low pH.
WokAH:	
Wilbur	Flooding.
WokAW:	
Wilbur	Flooding.
WprAK:	
Wirt	Flooding.
WpuAH:	
Wirt	Flooding.

Table 7.--Land Capability and Yields Per Acre of Crops and Pasture

(Yields are those that can be expected under a high level management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Tobacco	Orchardgrass-red clover hay	Orchardgrass-red clover	Alfalfa hay
		Bu	Bu	Bu	Lbs	Tons	AUM*	Tons
AddA:								
Avonburg--------	2w	115	40	52	2,600	3.8	7.6	---
AddB2:								
Avonburg--------	2e	110	38	49	2,500	3.6	7.3	---
BbhA:								
Bartle----------	2w	115	40	52	2,600	3.8	7.6	---
BbhB:								
Bartle----------	2e	115	40	52	2,500	3.8	7.6	---
BcrAW:								
Beanblossom-----	2w	100	35	40	2,950	3.3	6.6	5.0
BdoB:								
Bedford---------	2e	95	33	43	3,150	3.1	6.3	4.7
BfbC2:								
Blocher, soft bedrock, Weddel	3e	93	32	37	3,150	3.0	6.0	4.5
BfcC3:								
Blocher, soft bedrock, Weddel	4e	86	30	35	2,800	2.9	5.8	4.4
BnyD3:								
Bonnell---------	6e	65	23	29	2,600	2.1	4.2	3.2
BobE5:								
Bonnell, Hickory---------	7e	---	---	---	---	---	---	---
BodAH:								
Bonnie----------	3w	110	39	---	---	---	---	---
BodAW:								
Bonnie----------	2w	115	40	40	1,600	3.8	7.6	---
BvoG:								
Brownstown, Gilwood---------	7e	---	---	---	---	---	---	---
CkkB2:								
Cincinnati------	2e	90	32	41	3,300	3.0	6.0	4.5
CldC2:								
Cincinnati, Blocher---------	3e	87	30	39	3,150	2.9	5.8	4.4
CldC3:								
Cincinnati, Blocher---------	4e	83	29	37	2,800	2.7	5.4	4.1
CleC5:								
Cincinnati, Blocher---------	6e	---	---	---	---	---	---	---

See footnote at end of table.

Table 7.--Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Tobacco	Orchardgrass-red clover hay	Orchardgrass-red clover	Alfalfa hay
		Bu	Bu	Bu	Lbs	Tons	AUM*	Tons
ClfA:								
Cobbsfork-------	3w	120	42	48	1,900	4.0	7.9	---
ComC:								
Coolville-------	3e	70	25	32	3,150	2.3	4.6	3.5
ComC3:								
Coolville-------	4e	55	19	25	2,800	1.8	3.6	2.7
ConD:								
Coolville-------	4e	48	17	22	2,800	1.6	3.2	2.4
Rarden----------	6e	---	---	---	---	---	---	---
CwaAQ:								
Cuba------------	1	120	42	48	3,500	4.0	7.9	6.1
DbrG:								
Deam------------	7e	---	---	---	---	---	---	---
DddB2:								
Deputy----------	2e	95	33	38	3,300	3.1	6.3	4.7
DddC2:								
Deputy----------	3e	85	30	34	2,950	2.8	5.6	4.2
DddC3:								
Deputy----------	4e	80	28	32	2,600	2.6	5.3	3.9
DfnA:								
Dubois----------	2w	115	40	53	2,600	3.8	7.6	---
DfnB2:								
Dubois----------	2e	110	38	49	2,500	3.6	7.3	---
EepA:								
Elkinsville-----	1	120	42	54	3,500	4.0	7.9	6.1
EepB:								
Elkinsville-----	2e	120	42	54	3,500	4.0	7.9	6.1
EepF:								
Elkinsville-----	6e	---	---	---	---	2.3	4.6	3.5
GgfD:								
Gilwood, Wrays--	4e	68	24	27	2,600	2.2	4.5	3.3
GmaG:								
Gnawbone, Kurtz-	7e	---	---	---	---	---	---	---
HccA:								
Haubstadt-------	2w	95	33	43	3,150	3.1	6.3	4.7
HccB2:								
Haubstadt-------	2e	90	32	41	3,150	3.0	5.9	4.5
HcdC2:								
Haubstadt,	3e	77	27	35	2,950	2.5	5.1	3.8
Shircliff-------	4e							

See footnote at end of table.

Table 7.--Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Tobacco	Orchardgrass-red clover hay	Orchardgrass-red clover	Alfalfa hay
		Bu	Bu	Bu	Lbs	Tons	AUM*	Tons
HceC3:								
Haubstadt, Shircliff	4e	71	25	32	2,600	2.3	4.7	3.5
HcgAH:								
Haymond	2w	120	42	---	---	---	---	---
HcgAQ:								
Haymond	1	130	46	52	3,500	4.3	8.6	6.5
HcgAW:								
Haymond	2w	125	44	50	3,150	4.1	8.2	6.2
HeeG:								
Hickory	7e	---	---	---	---	---	---	---
HerE:								
Hickory	6e	---	---	---	---	2.5	5.0	3.8
Bonnell	6e	---	---	---	---	---	---	---
HleAW:								
Holton	2w	105	37	42	2,450	3.5	6.9	---
JaeB2:								
Jennings	2e	85	30	38	3,150	2.8	5.6	4.2
JafC2:								
Jennings, Blocher, hard bedrock	3e	83	29	37	2,950	2.7	5.5	4.1
JafC3:								
Jennings, Blocher, hard bedrock	4e	78	27	35	2,600	2.6	5.1	3.9
MhyA:								
Medora	2w	90	32	41	3,150	3.0	5.9	4.5
MhyB2:								
Medora	2e	85	30	38	3,150	2.8	5.6	4.2
MhyC2:								
Medora	3e	75	26	34	2,950	2.5	5.0	3.8
MhyC3:								
Medora	4e	70	25	32	2,600	2.3	4.6	3.5
NaaA:								
Nabb	2w	95	33	43	3,150	3.1	6.3	4.7
NaaB2:								
Nabb	2e	90	32	41	3,150	3.0	5.9	4.5
NamF:								
Negley	6e	---	---	---	---	1.8	3.6	2.7
NanD3:								
Negley	6e	70	24	28	2,800	2.3	4.6	3.5

See footnote at end of table.

Table 7.--Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Tobacco	Orchardgrass-red clover hay	Orchardgrass-red clover	Alfalfa hay
		Bu	Bu	Bu	Lbs	Tons	AUM*	Tons
OfbAW:								
Oldenburg-------	2w	105	37	42	2,800	3.5	6.9	5.3
PcrA:								
Pekin-----------	2s	95	33	43	3,150	3.1	6.3	4.7
PcrB2:								
Pekin-----------	2e	90	31	40	3,150	3.0	5.9	4.5
PcrC2:								
Pekin-----------	3e	80	28	36	2,950	2.6	5.3	3.9
PcrC3:								
Pekin-----------	4e	75	26	34	2,600	2.5	5.0	3.8
PhaA:								
Peoga-----------	3w	120	42	48	1,900	4.0	7.9	---
PlpAH:								
Piopolis--------	3w	105	37	---	---	---	---	---
Pml.								
Pits, quarry								
RblC3:								
Rarden----------	6e	35	12	16	2,300	1.2	2.3	1.8
RblD3:								
Rarden----------	7e	20	---	9	2,100	0.7	1.3	1.1
RbmD5:								
Rarden----------	7e	---	---	---	---	---	---	---
RptG:								
Rohan,								
Jessietown------	7e	---	---	---	---	---	---	---
SceA:								
Scottsburg------	2w	105	37	42	3,150	3.5	6.9	5.3
SceB2:								
Scottsburg------	2e	100	35	40	3,150	3.3	6.6	5.0
SoaB:								
Spickert--------	2e	90	32	41	3,150	3.0	5.9	4.5
SoaC2:								
Spickert--------	3e	75	26	34	2,950	2.5	5.0	3.8
StaAH:								
Steff-----------	2w	110	38	---	---	---	---	---
StaAQ:								
Steff-----------	1	125	45	50	3,300	4.1	8.3	6.2
StaAW:								
Steff-----------	2w	120	45	46	2,950	4.0	7.9	6.1
StdAH:								
Stendal---------	2w	120	42	---	---	---	---	---

See footnote at end of table.

Table 7.--Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Tobacco	Orchardgrass-red clover hay	Orchardgrass-red clover	Alfalfa hay
		Bu	Bu	Bu	Lbs	Tons	AUM*	Tons
StdAQ:								
Stendal---------	2w	130	46	52	2,800	4.3	8.6	---
StdAW:								
Stendal---------	2w	125	44	50	2,600	4.1	8.3	---
StmB2:								
Stonehead-------	2e	105	37	47	3,500	3.5	6.9	5.3
StmC:								
Stonehead-------	3e	100	35	45	3,150	3.3	6.6	5.0
ThaC2:								
Trappist--------	3e	40	14	16	2,800	1.3	2.6	2.0
ThbC3:								
Trappist--------	4e	30	11	12	2,450	1.0	2.0	1.5
ThbD5:								
Trappist--------	6e	---	---	---	---	---	---	---
ThcD3:								
Trappist,	6e	---	---	---	---	0.5	1.0	0.8
Rohan-----------	7e							
ThdD:								
Trappist,	4e	---	---	---	---	0.4	0.8	0.6
Rohan-----------	7e							
Uaa:								
Udorthents------	6s	---	---	---	---	---	---	---
W.								
Water								
WaaAH:								
Wakeland--------	2w	120	42	---	---	---	---	---
WaaAW:								
Wakeland--------	2w	125	44	50	2,600	4.1	8.3	---
WedB2:								
Weddel----------	2e	100	35	40	3,150	3.3	6.6	5.0
WhcD:								
Wellrock,								
Gnawbone--------	4e	70	25	28	2,800	2.3	4.6	3.5
WnmA:								
Whitcomb--------	2w	100	35	45	2,600	3.3	6.6	---
WokAH:								
Wilbur----------	2w	120	42	---	---	---	---	---
WokAW:								
Wilbur----------	2w	125	44	50	2,950	4.1	8.3	6.2
WomAM:								
Wilhite---------	8w	---	---	---	---	---	---	---

See footnote at end of table.

Table 7.--Land Capability and Yields Per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Wheat, winter	Tobacco	Orchardgrass-red clover hay	Orchardgrass-red clover	Alfalfa hay
		Bu	Bu	Bu	Lbs	Tons	AUM*	Tons
WprAW:								
Wirt------------	2w	100	35	38	2,950	3.3	6.6	5.0
WpuAH:								
Wirt------------	2w	95	33	---	---	---	---	---

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 8.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
AddA	Avonburg silt loam, 0 to 2 percent slopes (where drained)
AddB2	Avonburg silt loam, 2 to 4 percent slopes, eroded (where drained)
BbhA	Bartle silt loam, 0 to 2 percent slopes (where drained)
BbhB	Bartle silt loam, 2 to 4 percent slopes (where drained)
BcrAW	Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration
BdoB	Bedford silt loam, 2 to 6 percent slopes
BodAH	Bonnie silt loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and protected from flooding or not frequently flooded during the growing season)
BodAW	Bonnie silt loam, 0 to 1 percent slopes, occasionally flooded, very brief duration (where drained)
CkkB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded
ClfA	Cobbsfork silt loam, 0 to 1 percent slopes (where drained)
CwaAQ	Cuba silt loam, 0 to 2 percent slopes, rarely flooded
DddB2	Deputy silt loam, 2 to 6 percent slopes, eroded
DfnA	Dubois silt loam, 0 to 2 percent slopes (where drained)
DfnB2	Dubois silt loam, 2 to 6 percent slopes, eroded (where drained)
EepA	Elkinsville silt loam, 0 to 2 percent slopes
EepB	Elkinsville silt loam, 2 to 6 percent slopes
HccA	Haubstadt silt loam, 0 to 2 percent slopes
HccB2	Haubstadt silt loam, 2 to 6 percent slopes, eroded
HcgAH	Haymond silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
HcgAQ	Haymond silt loam, 0 to 2 percent slopes, rarely flooded
HcgAW	Haymond silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration
HleAW	Holton silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration (where drained)
JaeB2	Jennings silt loam, 2 to 6 percent slopes, eroded
MhyA	Medora silt loam, 0 to 2 percent slopes
MhyB2	Medora silt loam, 2 to 6 percent slopes, eroded
NaaA	Nabb silt loam, 0 to 2 percent slopes
NaaB2	Nabb silt loam, 2 to 6 percent slopes, eroded
PcrA	Pekin silt loam, 0 to 2 percent slopes
PcrB2	Pekin silt loam, 2 to 6 percent slopes, eroded
PhaA	Peoga silt loam, 0 to 1 percent slopes (where drained)
PlpAH	Piopolis silty clay loam, 0 to 1 percent slopes, frequently flooded, brief duration (where drained and protected from flooding or not frequently flooded during the growing season)
SceA	Scottsburg silt loam, 0 to 2 percent slopes
SceB2	Scottsburg silt loam, 2 to 4 percent slopes, eroded
SoaB	Spickert silt loam, 2 to 6 percent slopes
StaAH	Steff silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
StaAQ	Steff silt loam, 0 to 2 percent slopes, rarely flooded
StaAW	Steff silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration
StdAH	Stendal silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where drained and protected from flooding or not frequently flooded during the growing season)
StdAW	Stendal silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration (where drained)
StdAQ	Stendal silt loam, 0 to 2 percent slopes, rarely flooded (where drained)
StmB2	Stonehead silt loam, 2 to 6 percent slopes, eroded
WaaAH	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where drained and protected from flooding or not frequently flooded during the growing season)
WaaAW	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration (where drained)
WedB2	Weddel silt loam, 2 to 6 percent slopes, eroded
WnmA	Whitcomb silt loam, 0 to 2 percent slopes (where drained)
WokAH	Wilbur silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)
WokAW	Wilbur silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration
WprAW	Wirt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration
WpuAH	Wirt silt loam, 0 to 2 percent slopes, frequently flooded, brief duration (where protected from flooding or not frequently flooded during the growing season)

Table 9.--Windbreaks and Environmental Plantings

(Only the soils suitable for windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
AddA:					
Avonburg--------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
AddB2:					
Avonburg--------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BbhA:					
Bartle----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BbhB:					
Bartle----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BcrAW:					
Beanblossom-----	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
BdoB:					
Bedford---------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BfbC2:					
Blocher, soft bedrock substratum-----	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
Weddel----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BfcC3:					
Blocher, soft bedrock substratum-----	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
Weddel----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BnyD3:					
Bonnell---------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
BobE5:					
Bonnell---------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Hickory---------	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
BodAH:					
Bonnie----------	Black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	American plum, blackhaw, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern whitecedar, shadbush, witchhazel.	Norway spruce, baldcypress, eastern white pine, green ash, southern red oak, tuliptree.	Eastern cottonwood, pin oak.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
BodAW:					
Bonnie	Black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	American plum, blackhaw, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern whitecedar, shadbush, witchhazel.	Norway spruce, baldcypress, eastern white pine, green ash, southern red oak, tuliptree.	Eastern cottonwood, pin oak.
BvoG:					
Brownstown	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Alternateleaf dogwood, eastern redcedar, hazelnut, nannyberry, northern whitecedar, shadbush.	Eastern white pine, green ash.	---	---
Gilwood	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Alternateleaf dogwood, eastern redcedar, hazelnut, nannyberry, northern whitecedar, shadbush.	Eastern white pine, green ash.	---	---
CkkB2:					
Cincinnati	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
CldC2:					
Cincinnati	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Blocher	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
CldC3:					
Cincinnati	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CldC3:					
Blocher	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
CleC5:					
Cincinnati	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Blocher	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
ClfA:					
Cobbsfork	Black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	American plum, blackhaw, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern whitecedar, shadbush, witchhazel.	Norway spruce, baldcypress, eastern white pine, green ash, southern red oak, tuliptree.	Eastern cottonwood, pin oak.
ComC:					
Coolville	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
ComC3:					
Coolville	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
ConD:					
Coolville	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Rarden	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CwaAQ:					
Cuba	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
DbrG:					
Deam	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
DddB2:					
Deputy	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
DddC2:					
Deputy	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
DddC3:					
Deputy	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
DfnA:					
Dubois	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
DfnB2:					
Dubois	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
DfoA:					
Dubois----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Urban land.					
EepA:					
Elkinsville-----	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
EepB:					
Elkinsville-----	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
EepF:					
Elkinsville-----	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
GgfD:					
Gilwood---------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Alternateleaf dogwood, eastern redcedar, hazelnut, nannyberry, northern whitecedar, shadbush.	Eastern white pine, green ash.	---	---
Wrays-----------	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
GmaG:					
Gnawbone--------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Alternateleaf dogwood, eastern redcedar, hazelnut, nannyberry, northern whitecedar, shadbush.	Eastern white pine, green ash.	---	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
GmaG:					
Kurtz	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
HccA:					
Haubstadt	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
HccB2:					
Haubstadt	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
HcdC2:					
Haubstadt	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Shircliff	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
HceC3:					
Haubstadt	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Shircliff	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
HcfB:					
Haubstadt	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Urban land.					

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
HcgAH:					
Haymond	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
HcgAQ:					
Haymond	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
HcgAW:					
Haymond	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
HeeG:					
Hickory	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
HerE:					
Hickory	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
Bonnell	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
HleAW:					
Holton	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
JaeB2:					
Jennings	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
JafC2:					
Jennings	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Blocher, hard bedrock substratum	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
JafC3:					
Jennings	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Blocher, hard bedrock substratum	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
MhyA:					
Medora	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
MhyB2:					
Medora	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MhyC2:					
Medora----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
MhyC3:					
Medora----------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
NaaA:					
Nabb------------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
NaaB2:					
Nabb------------	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
NamF:					
Negley----------	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
NanD3:					
Negley----------	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
OfbAW:					
Oldenburg-------	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
PcrA:					
Pekin	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
PcrB2:					
Pekin	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
PcrC2:					
Pekin	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
PcrC3:					
Pekin	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
PhaA:					
Peoga	Black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	American plum, blackhaw, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern whitecedar, shadbush, witchhazel.	Norway spruce, baldcypress, eastern white pine, green ash, southern red oak, tuliptree.	Eastern cottonwood, pin oak.
PlpAH:					
Piopolis	Black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	American plum, blackhaw, nannyberry, roughleaf dogwood.	Eastern redcedar, hackberry, northern whitecedar, shadbush, witchhazel.	Norway spruce, baldcypress, eastern white pine, green ash, southern red oak, tuliptree.	Eastern cottonwood, pin oak.
Pml.					
Pits, quarry					
RblC3:					
Rarden	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
RblD3:					
Rarden	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
RbmD5:					
Rarden	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
RptG:					
Rohan	American plum, black chokeberry, blackhaw, gray dogwood, mapleleaf arrowwood.	Cock's-spur hawthorn, eastern redcedar, eastern white pine, nannyberry, shadbush.	Black locust, thornless honey locust.	---	---
Jessietown	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
SceA:					
Scottsburg	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
SceB2:					
Scottsburg	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
SoaB:					
Spickert	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
SoaC2:					
Spickert	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
StaAH:					
Steff	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
StaAQ:					
Steff	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
StaAW:					
Steff	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
StdAH:					
Stendal	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
StdAQ:					
Stendal	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
StdAW:					
Stendal	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
StmB2:					
Stonehead	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
StmC:					
Stonehead	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
ThaC2:					
Trappist	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
ThbC3:					
Trappist	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
ThbD5:					
Trappist	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
ThcD3:					
Trappist	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Rohan	American plum, black chokeberry, blackhaw, gray dogwood, mapleleaf arrowwood.	Cock's-spur hawthorn, eastern redcedar, eastern white pine, nannyberry, shadbush.	Black locust, thornless honey locust.	---	---

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
ThdD:					
Trappist	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
Rohan	American plum, black chokeberry, blackhaw, gray dogwood, mapleleaf arrowwood.	Cock's-spur hawthorn, eastern redcedar, eastern white pine, nannyberry, shadbush.	Black locust, thornless honey locust.	---	---
Uaa. Udorthents					
W. Water					
WaaAH:					
Wakeland	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
WaaAW:					
Wakeland	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
WedB2:					
Weddel	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
WhcD:					
Wellrock	Coralberry, gray dogwood, mapleleaf arrowwood, redosier dogwood.	American plum, blackhaw, hazelnut, roughleaf dogwood.	Eastern redcedar, nannyberry, northern whitecedar, shadbush.	Norway spruce, baldcypress, green ash, hackberry, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
Gnawbone	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Alternateleaf dogwood, eastern redcedar, hazelnut, nannyberry, northern whitecedar, shadbush.	Eastern white pine, green ash.	---	---
WnmA:					
Whitcomb	American plum, black chokeberry, coralberry, gray dogwood, mapleleaf arrowwood.	Washington hawthorn, blackhaw, hazelnut, nannyberry, shadbush.	Baldcypress, eastern redcedar, green ash, northern whitecedar.	Norway spruce, eastern white pine, pin oak.	Eastern cottonwood.
WokAH:					
Wilbur	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
WokAW:					
Wilbur	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.
WomAM. Wilhite					
WprAW:					
Wirt	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.

Table 9.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
WpuAH:					
Wirt------------	Black chokeberry, common winterberry, coralberry, mapleleaf arrowwood, silky dogwood.	American plum, rusty blackhaw, shadbush.	Washington hawthorn, eastern redcedar, nannyberry, northern whitecedar, southern red oak.	Norway spruce, baldcypress, common hackberry, green ash, tuliptree.	Eastern cottonwood, eastern white pine, pin oak.

Table 10.--Forestland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.

Map symbol and soil name	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Plant competi-tion	Potential productivity: Common trees	Site index	Produc-tivity index*	Suggested trees to plant
									m3/ha	
AddA:										
Avonburg--------	4D	Slight	Moderate	Slight	Moderate	Severe	White oak-----------	70	4	White ash,
							Pin oak-------------	85	5	green ash,
							Tuliptree-----------	85	6	pin oak,
							Sweetgum------------	80	6	sweetgum, swamp
							Northern red oak----	75	4	white oak,
										Shumard's oak,
										bur oak, American
										sycamore.
AddB2:										
Avonburg--------	4D	Slight	Moderate	Slight	Moderate	Severe	White oak-----------	70	4	White ash,
							Pin oak-------------	85	5	green ash,
							Tuliptree-----------	85	6	pin oak,
							Sweetgum------------	80	6	sweetgum, swamp
							Northern red oak----	75	4	white oak,
										Shumard's oak,
										bur oak, American
										sycamore.
BbhA:										
Bartle----------	4D	Slight	Moderate	Slight	Moderate	Severe	White oak-----------	75	4	White ash,
							Sweetgum------------	80	6	green ash,
							Pin oak-------------	85	5	pin oak,
							Tuliptree-----------	85	6	sweetgum, swamp
										white oak,
										Shumard's oak,
										bur oak, American
										sycamore.
BbhB:										
Bartle----------	4D	Slight	Moderate	Slight	Moderate	Severe	White oak-----------	75	4	white ash,
							Sweetgum------------	80	6	green ash,
							Pin oak-------------	85	5	pin oak,
							Tuliptree-----------	85	6	sweetgum, swamp
										white oak,
										Shumard's oak,
										bur oak, American
										sycamore.
BcrAW:										
Beanblossom-----	7F	Slight	Slight	Slight	Slight	Moderate	Tuliptree-----------	95	7	White ash,
							American sycamore---	---	---	green ash,
							Black cherry--------	---	---	northern red oak,
							Northern red oak----	---	---	red maple,
										black oak,
										American
										sycamore.

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
BdoB:										
Bedford---------	4A	Slight	Slight	Slight	Moderate	Severe	Northern red oak----	75	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Virginia pine-------	75	8	
							Tuliptree-----------	90	6	
							White oak-----------	70	4	
							Sugar maple---------	75	3	
BfbC2:										
Blocher, soft bedrock--------	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	76	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	90	6	
							Virginia pine-------	80	8	
Weddel----------	4D	Slight	Slight	Slight	Moderate	Moderate	Northern red oak----	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							White oak-----------	65	3	
							Tuliptree-----------	75	4	
BfcC3:										
Blocher, soft bedrock--------	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	76	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	90	6	
							Virginia pine-------	80	8	
Weddel----------	3D	Slight	Slight	Slight	Severe	Moderate	Northern red oak----	65	3	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							White oak-----------	60	3	
							Tuliptree-----------	70	4	
BnyD3:										
Bonnell---------	4R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak----	70	4	White ash, green ash, white oak, tuliptree, black cherry, eastern white pine, black walnut, northern red oak.
							Virginia pine-------	70	8	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
BobE5:										
Bonnell----------	3R	Severe	Moderate	Moderate	Slight	Moderate	Northern red oak----	65	3	White ash, green ash, tuliptree, white, oak, eastern white pine, black walnut, northern red oak, black cherry.
							Tuliptree-----------	---	---	
							White oak-----------	---	---	
							Shagbark hickory----	---	---	
BobE5:										
Hickory----------	5R	Severe	Moderate	Moderate	Slight	Moderate	White oak-----------	85	5	White ash, green ash, black walnut, tuliptree, eastern white pine, white oak, northern red oak, black cherry.
							Shagbark hickory----	---	---	
							Tuliptree-----------	---	---	
							Northern red oak----	---	---	
BodAW:										
Bonnie-----------	5W	Slight	Severe	Severe	Severe	Severe	Pin oak-------------	90	5	Red maple, green ash, sweetgum, pin oak, American sycamore, eastern cottonwood, swamp white oak, bur oak.
							Sweetgum------------	---	---	
							American sycamore---	---	---	
							Eastern cottonwood--	100	9	
BodAK:										
Bonnie-----------	5W	Slight	Severe	Severe	Severe	Severe	Pin oak-------------	90	5	Red maple, green ash, sweetgum, pin oak, American sycamore, eastern cottonwood, swamp white oak, bur oak.
							Sweetgum------------	---	---	
							American sycamore---	---	---	
							Eastern cottonwood--	100	9	
BvoG:										
Brownstown-------	2R	Severe	Severe	Moderate	Moderate	Moderate	Black oak-----------	50	2	Green ash, black oak, Virginia pine, eastern white, pine, northern red oak.
							Virginia pine-------	---	---	
							Chestnut oak--------	50	2	
Gilwood----------	3R	Severe	Severe	Moderate	Moderate	Moderate	Northern red oak----	60	3	Green ash, black oak, Virginia pine, eastern white, pine, northern red oak.
							Chestnut oak--------	60	3	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity index*	Suggested trees to plant
									m3/ha	
CkkB2:										
Cincinnati------	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak----	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							American beech------	---	---	
							White oak-----------	70	4	
							Sugar maple---------	---	---	
CldC2:										
Cincinnati------	4D	Slight	Slight	Slight	Moderate	Moderate	Northern red oak----	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							American beech------	---	---	
							White oak-----------	---	---	
							Sugar maple---------	---	---	
Blocher---------	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	76	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	90	6	
							Virginia pine-------	80	8	
CldC3:										
Cincinnati------	4D	Slight	Slight	Moderate	Severe	Moderate	Northern red oak----	80	4	White ash, green ash, eastern white pine, white oak, northern red oak, black oak, tuliptree.
							American beech------	---	---	
							White oak-----------	---	---	
							Sugar maple---------	---	---	
Blocher---------	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	76	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	90	6	
							Virginia pine-------	80	8	
CleC5:										
Cincinnati------	3D	Moderate	Slight	Moderate	Severe	Moderate	Northern red oak----	66	3	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Virginia pine-------	70	8	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
CleC5:										
Blocher	3A	Moderate	Slight	Slight	Slight	Severe	Northern red oak	66	3	White ash, green ash, eastern white pine, white oak, northern red oak, black oak, tuliptree.
							Virginia pine	70	8	
ClfA:										
Cobbsfork	6W	Slight	Severe	Moderate	Severe	Severe	Pin oak	100	6	Red maple, green ash, sweetgum, pin oak, American sycamore, swamp white oak, bur oak, eastern cottonwood.
							Tuliptree	---	---	
							Red maple	---	---	
							Sweetgum	---	---	
							Swamp white oak	---	---	
							American beech		---	
ComC:										
Coolville	3D	Slight	Slight	Slight	Slight	Moderate	Northern red oak	66	3	White ash, green ash, eastern white pine, white oak, northern red oak, black oak, tuliptree.
							White ash	---	---	
							Tuliptree	---	---	
							White oak	---	---	
							Sugar maple	---	---	
ComC3:										
Coolville	3D	Slight	Slight	Slight	Slight	Moderate	Northern red oak	66	3	White ash, green ash, eastern white pine, white oak, northern red oak, black oak, tuliptree.
							White ash	---	---	
							Tuliptree	---	---	
							Black cherry	---	---	
							White oak	---	---	
							Sugar maple	---	---	
ConD:										
Coolville	3D	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak	66	3	White ash, green ash, eastern white pine, white oak, northern red oak, black oak, tuliptree.
							White ash	---	---	
							Tuliptree	---	---	
							White oak	---	---	
							Sugar maple	---	---	
Rarden	4C	Moderate	Moderate	Moderate	Moderate	Moderate	Black oak	71	4	Green ash, eastern white pine, Virginia pine, northern red oak, black oak, tuliptree.
							White ash	---	---	
							Northern red oak	62	3	
							Red maple	---	---	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
CwaAQ:										
Cuba	8A	Slight	Slight	Slight	Slight	Severe	Tuliptree	100	8	White ash, green ash, black walnut, tuliptree, eastern white pine, white oak, black cherry, bur oak, northern red oak, Shumard's oak.
DbrG:										
Deam	3R	Severe	Severe	Moderate	Moderate	Moderate	Northern red oak	60	3	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak.
							White oak	---	---	
							Black oak	---	---	
DddB2:										
Deputy	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	71	4	White ash, tuliptree, eastern white pine, northern red oak, black oak.
							Tuliptree	90	6	
							Virginia pine	70	8	
							Black oak	83	4	
DddC2:										
Deputy	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	71	4	White ash, tuliptree, eastern white pine, northern red oak, black oak.
							Tuliptree	90	6	
							Virginia pine	70	8	
							Black oak	83	4	
DddC3:										
Deputy	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak	71	4	White ash, tuliptree, eastern white pine, northern red oak, black oak.
							Tuliptree	90	6	
							Virginia pine	70	8	
							Black oak	83	4	
DfnA:										
Dubois	5D	Slight	Moderate	Slight	Moderate	Severe	Pin oak	85	5	White ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak, Shumard's oak.
							Northern red oak	80	4	
							Tuliptree	95	7	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
DfnB2:										
Dubois----------	5D	Slight	Moderate	Slight	Moderate	Severe	Pin oak-------------	85	5	White ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak, Shumard's oak.
							Northern red oak----	80	4	
							Tuliptree-----------	95	7	
DfoA:										
Dubois----------	5D	Slight	Moderate	Slight	Moderate	Severe	Pin oak-------------	85	5	White ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak, Shumard's oak.
							Northern red oak----	80	4	
							Tuliptree-----------	95	7	
EepA:										
Elkinsville-----	5A	Slight	Slight	Slight	Slight	Severe	White oak-----------	90	5	White ash, green ash, black walnut, tuliptree, eastern white pine, black cherry, white oak, northern red oak.
							Tuliptree-----------	118	10	
EepB:										
Elkinsville-----	5A	Slight	Slight	Slight	Slight	Severe	White oak-----------	90	5	White ash, green ash, black walnut, tuliptree, eastern white pine, black cherry, white oak, northern red oak.
							Tuliptree-----------	118	10	
EepF:										
Elkinsville-----	5R	Severe	Moderate	Slight	Slight	Severe	White oak-----------	90	5	White ash, black walnut, tuliptree, eastern white pine, black cherry, white oak, northern red oak.
							Tuliptree-----------	118	10	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
GgfD:										
Gilwood	4A	Moderate	Slight	Moderate	Moderate	Moderate	Chestnut oak	70	4	Green ash, Virginia pine, eastern white pine, northern red oak, black oak.
							Northern red oak	70	4	
Wrays	5A	Moderate	Slight	Slight	Slight	Severe	Black oak	85	5	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black walnut, black cherry.
							Tuliptree	90	6	
							White oak	70	4	
GmaG:										
Gnawbone	4R	Severe	Severe	Moderate	Moderate	Moderate	Chestnut oak	70	4	Green ash, Virginia pine, eastern white pine, northern red oak, black oak.
							Northern red oak	70	4	
Kurtz	3R	Severe	Severe	Slight	Slight	Severe	Northern red oak	60	3	White ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							White oak	---	---	
							Black oak	---	---	
HccA:										
Haubstadt	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple	---	---	
							American beech	---	---	
							White oak	---	---	
							White ash	---	---	
HccB2:										
Haubstadt	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple	---	---	
							American beech	---	---	
							White oak	---	---	
							White ash	---	---	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Plant competi-tion	Potential productivity: Common trees	Site index	Produc-tivity index*	Suggested trees to plant
									m3/ha	
HcdC2:										
Haubstadt-------	4D	Slight	Slight	Moderate	Severe	Moderate	Northern red oak----	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	---	---	
							American beech------	---	---	
							White oak-----------	---	---	
							White ash-----------	---	---	
Shircliff-------	8C	Moderate	Slight	Slight	Slight	Severe	Tuliptree-----------	105	8	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak, Shumard's oak, black locust, bur oak.
							Red pine------------	84	12	
HceC3:										
Haubstadt-------	4D	Slight	Slight	Moderate	Severe	Moderate	Northern red oak----	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	---	---	
							American beech------	---	---	
							White oak-----------	70	4	
							White ash-----------	---	---	
Shircliff-------	8C	Moderate	Slight	Slight	Slight	Severe	Tuliptree-----------	105	8	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak, Shumard's oak, black locust, bur oak.
							Red pine------------	84	12	
HcfB:										
Haubstadt-------	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak----	80	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	---	---	
							American beech------	---	---	
							White oak-----------	---	---	
							White ash-----------	---	---	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
HcgAH:										
Haymond---------	8A	Slight	Moderate	Severe	Slight	Severe	Tuliptree-----------	100	8	Green ash, sweetgum, pin oak, American sycamore, swamp white oak, bur oak.
HcgAQ:										
Haymond---------	8A	Slight	Slight	Slight	Slight	Severe	Tuliptree-----------	100	8	White ash, green ash, black walnut, tuliptree, bur oak, eastern white pine, white oak, northern red oak, Shumard's oak, black cherry.
							Black walnut--------	70	---	
							White oak-----------	90	5	
HcgAW:										
Haymond---------	8A	Slight	Slight	Slight	Slight	Severe	Tuliptree-----------	100	8	White ash, green ash, black walnut, tuliptree, bur oak, eastern white pine, white oak, northern red oak, Shumard's oak, black cherry.
							Black walnut--------	70	---	
							White oak-----------	90	5	
HeeG:										
Hickory---------	5R	Severe	Severe	Slight	Slight	Severe	White oak-----------	85	5	White ash, green ash, black walnut, tuliptree, eastern white pine, white oak, northern red oak, black cherry.
							Bitternut hickory---	---	---	
							Green ash-----------	---	---	
							Tuliptree-----------	95	7	
							Northern red oak----	85	5	
HerE:										
Hickory---------	5R	Moderate	Moderate	Slight	Slight	Severe	White oak-----------	85	5	White ash, green ash, black walnut, tuliptree, eastern white pine, white oak, northern red oak, black cherry.
							Bitternut hickory---	---	---	
							Green ash-----------	---	---	
							Tuliptree-----------	95	7	
							Northern red oak----	85	5	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
HerE:										
Bonnell	4R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak	80	4	White ash, green ash, black walnut, tuliptree, eastern white pine, white oak, northern red oak, black cherry.
							Virginia pine	80	8	
							Tuliptree	90	6	
HleAW:										
Holton	5A	Slight	Moderate	Slight	Moderate	Severe	Pin oak	85	5	Red maple, white ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak.
							Sugar maple	80	4	
							Tuliptree	90	6	
							Northern red oak	80	4	
JaeB2:										
Jennings	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree	100	8	
							Black oak	65	3	
JafC2:										
Jennings	4D	Slight	Slight	Slight	Moderate	Moderate	Northern red oak	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree	100	8	
							Black oak	65	3	
Blocher, hard bedrock	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	76	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Virginia pine	80	8	
							Tuliptree	90	6	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
JafC3:										
Jennings--------	4D	Slight	Slight	Moderate	Severe	Moderate	Northern red oak----	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	100	8	
Blocher, hard bedrock--------	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	76	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Virginia pine-------	80	8	
							Tuliptree-----------	90	6	
MhyA:										
Medora----------	5D	Slight	Slight	Slight	Moderate	Severe	White oak-----------	90	5	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	98	7	
MhyB2:										
Medora----------	5D	Slight	Slight	Slight	Moderate	Severe	White oak-----------	90	5	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	98	7	
MhyC2:										
Medora----------	5D	Slight	Slight	Slight	Moderate	Moderate	White oak-----------	90	5	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	98	7	
MhyC3:										
Medora----------	4D	Slight	Slight	Moderate	Severe	Moderate	White oak-----------	75	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	90	6	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Plant competi-tion	Potential productivity: Common trees	Site index	Produc-tivity index*	Suggested trees to plant
									m3/ha	
NaaA:										
Nabb------------	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak----	80	4	White ash, green ash, northern red oak, white oak, tuliptree, eastern white pine, black oak.
							White oak-----------	80	4	
NaaB2:										
Nabb------------	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak----	80	4	White ash, green ash, tuliptree, white oak, black oak, eastern white pine, northern red oak.
							White oak-----------	80	4	
NamF:										
Negley----------	5R	Severe	Moderate	Slight	Slight	Severe	Northern red oak----	94	5	Green ash, tuliptree, eastern white pine, black cherry, white oak, northern red oak.
							Sugar maple---------	---	---	
							White ash-----------	---	---	
							Tuliptree-----------	99	7	
							Black cherry--------	---	---	
NanD3:										
Negley----------	5R	Moderate	Moderate	Slight	Slight	Severe	Northern red oak----	94	5	Green ash, tuliptree, eastern white pine, black cherry, white oak, northern red oak.
							Sugar maple---------	---	---	
							White ash-----------	---	---	
							Tuliptree-----------	99	7	
							Black cherry--------	---	---	
OfbAW:										
Oldenburg-------	5A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	90	5	White ash, green ash, sweetgum, swamp white oak, bur oak, pin oak, Shumard’s oak.
							Tuliptree-----------	94	7	
PcrA:										
Pekin-----------	4D	Slight	Slight	Slight	Moderate	Severe	White oak-----------	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	75	3	
							Virginia pine-------	75	8	
							Tuliptree-----------	85	6	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordi- nation symbol	Management concerns: Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Wind- throw hazard	Plant competi- tion	Potential productivity: Common trees	Site index	Produc- tivity index*	Suggested trees to plant
									m3/ha	
PcrB2:										
Pekin-----------	4D	Slight	Slight	Slight	Moderate	Severe	White oak-----------	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	75	3	
							Virginia pine-------	75	8	
							Tuliptree-----------	85	6	
PcrC2:										
Pekin-----------	4D	Slight	Slight	Slight	Moderate	Moderate	White oak-----------	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	75	3	
							Virginia pine-------	75	8	
							Tuliptree-----------	85	6	
PcrC3:										
Pekin-----------	3D	Slight	Slight	Moderate	Severe	Moderate	White oak-----------	65	3	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Sugar maple---------	65	3	
							Virginia pine-------	65	7	
							Tuliptree-----------	80	5	
PhaA:										
Peoga-----------	6W	Slight	Severe	Moderate	Severe	Severe	Pin oak-------------	100	6	Red maple, green ash, sweetgum, pin oak, American sycamore, eastern cottonwood, swamp white oak, bur oak.
							American beech------	---	---	
							Tuliptree-----------	75	4	
							Red maple-----------	---	---	
							Sweetgum------------	90	7	
							Swamp white oak-----	---	---	
PlpAH:										
Piopolis--------	5W	Slight	Severe	Severe	Severe	Severe	Pin oak-------------	90	5	Red maple, green ash, sweetgum, pin oak, American sycamore, eastern cottonwood, swamp white oak, bur oak.
							Sweetgum------------	---	---	
							American sycamore---	---	---	
							Eastern cottonwood--	100	9	
RblC3:										
Rarden----------	4C	Slight	Slight	Moderate	Moderate	Moderate	Black oak-----------	71	4	Green ash, tuliptree, eastern white pine, northern red oak, black oak.
							Red maple-----------	---	---	
							White ash-----------	---	---	
							Northern red oak----	62	3	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Windthrow hazard	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity index*	Suggested trees to plant
									m3/ha	
RblD3:										
Rarden	4C	Moderate	Slight	Moderate	Moderate	Moderate	Black oak	71	4	Green ash, tuliptree, eastern white pine, northern red oak, black oak.
							Red maple	---	---	
							White ash	---	---	
							Northern red oak	62	3	
RbmD5:										
Rarden	4C	Moderate	Slight	Severe	Moderate	Slight	Black oak	71	4	Green ash, tuliptree, eastern white pine, northern red oak, black oak.
							Red maple	---	---	
							White ash	---	---	
							Northern red oak	62	3	
RptG:										
Rohan	2R	Severe	Severe	Severe	Severe	Slight	Chestnut oak	52	2	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.
							White oak	---	---	
							Virginia pine	52	5	
Jessietown	7R	Severe	Severe	Moderate	Moderate	Moderate	Virginia pine	62	7	Green ash, eastern white pine, Virginia pine, tuliptree northern red oak, black oak.
							Red maple	---	---	
							White oak	60	3	
							Chestnut oak	58	3	
							Black oak	62	3	
SceA:										
Scottsburg	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Virginia pine	70	8	
							Tuliptree	85	6	
SceB2:										
Scottsburg	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	70	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Virginia pine	70	8	
							Tuliptree	85	6	
SoaB:										
Spickert	3D	Slight	Slight	Slight	Moderate	Severe	White oak	60	3	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree	100	8	
							Black oak	90	5	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
SoaC2:										
Spickert	3D	Slight	Slight	Slight	Moderate	Moderate	White oak	60	3	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree	100	8	
							Black oak	90	5	
StaAH:										
Steff	8W	Slight	Moderate	Severe	Slight	Severe	Tuliptree	107	8	Green ash, bur oak, pin oak, swamp white oak, sweetgum, American sycamore.
							Red maple	---	---	
							Silver maple	---	---	
							Sweetgum	100	10	
							American sycamore	---	---	
							Black oak	88	5	
StaAQ:										
Steff	8W	Slight	Slight	Slight	Slight	Severe	Tuliptree	107	8	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak.
							Red maple	---	---	
							Sweetgum	100	10	
							Black oak	88	5	
							White ash	---	---	
							White oak	---	---	
StaAW:										
Steff	8W	Slight	Slight	Slight	Slight	Severe	Tuliptree	107	8	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak.
							Red maple	---	---	
							Sweetgum	100	10	
							Black oak	88	5	
							White ash	---	---	
							White oak	---	---	
StdAH:										
Stendal	5W	Slight	Moderate	Severe	Moderate	Severe	Pin oak	90	5	Red maple, white ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak, eastern cottonwood.
							Eastern cottonwood	88	7	
							Sweetgum	85	6	
StdAQ:										
Stendal	5W	Slight	Moderate	Slight	Moderate	Severe	Pin oak	90	5	Red maple, white ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak.
							Tuliptree	90	6	
							Eastern cottonwood	88	7	
							Sweetgum	85	6	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Plant competi-tion	Potential productivity: Common trees	Site index	Produc-tivity index*	Suggested trees to plant
									m3/ha	
StdAW:										
Stendal---------	5W	Slight	Moderate	Slight	Moderate	Severe	Pin oak-------------	90	5	Red maple, white ash, green ash, sweetgum, American sycamore, swamp white oak, bur oak, pin oak.
							Tuliptree-----------	90	6	
							Eastern cottonwood--	88	7	
							Sweetgum-----------	85	6	
StmB2:										
Stonehead-------	5A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	90	5	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
StmC:										
Stonehead-------	5A	Slight	Slight	Slight	Slight	Severe	Northern red oak----	90	5	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
ThaC2:										
Trappist--------	7C	Slight	Slight	Moderate	Moderate	Moderate	Virginia pine-------	62	7	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.
							American beech------	---	---	
							White oak-----------	62	3	
							Chestnut oak--------	58	3	
							Northern red oak----	72	4	
							Black oak-----------	68	4	
ThbC3:										
Trappist--------	6C	Slight	Slight	Moderate	Moderate	Moderate	Virginia pine-------	55	6	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.
							White oak-----------	---	---	
							American beech------	---	---	
ThbD5:										
Trappist--------	5C	Moderate	Moderate	Severe	Moderate	Slight	Virginia pine-------	52	5	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
ThcD3:										
Trappist--------	6C	Moderate	Moderate	Moderate	Moderate	Moderate	Virginia pine-------	55	6	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.
							White oak-----------	---	---	
							American beech------	---	---	
Rohan-----------	2D	Moderate	Moderate	Severe	Severe	Slight	Chestnut oak--------	52	2	Green ash, eastern white pine, Virginia pine, scarlet bur oak, black oak, northern red oak.
							White oak-----------	---	---	
							Virginia pine-------	52	5	
ThdD:										
Trappist--------	7C	Moderate	Moderate	Moderate	Moderate	Moderate	Virginia pine-------	62	7	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.
							American beech------	---	---	
							White oak-----------	62	3	
							Chestnut oak--------	58	3	
							Northern red oak----	72	4	
							Black oak-----------	68	4	
Rohan-----------	3R	Moderate	Moderate	Severe	Severe	Slight	Chestnut oak--------	67	3	Green ash, eastern white pine, Virginia pine, northern red oak, black oak.
							Virginia pine-------	58	6	
							Black oak-----------			
WaaAH:										
Wakeland--------	5A	Slight	Moderate	Severe	Moderate	Severe	Pin oak-------------	90	5	White ash, green ash, red maple, American sycamore, swamp white oak, bur oak, sweetgum, pin oak.
							Sweetgum------------	88	7	
							Virginia pine-------	85	9	
							Tuliptree-----------	90	6	
WaaAW:										
Wakeland--------	5A	Slight	Moderate	Slight	Moderate	Severe	Pin oak-------------	90	5	White ash, green ash, bur oak, pin oak, American sycamore, swamp white oak, sweetgum, northern red oak.
							Sweetgum------------	88	7	
							Virginia pine-------	85	9	
							Tuliptree-----------	90	6	

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity index*	Suggested trees to plant
									m3/ha	
WedB2:										
Weddel----------	4D	Slight	Slight	Slight	Moderate	Severe	Northern red oak----	75	4	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak, black oak.
							Tuliptree-----------	90	6	
							White oak-----------	70	4	
WhcD:										
Wellrock--------	5A	Moderate	Slight	Slight	Slight	Severe	Black oak-----------	85	5	Green ash, tuliptree, eastern white pine, white oak, northern red oak, white ash, black cherry, black walnut.
							Tuliptree-----------	90	6	
							White oak-----------	70	4	
Gnawbone--------	4A	Moderate	Slight	Moderate	Moderate	Moderate	Chestnut oak--------	70	4	Green ash, black oak, eastern white pine, northern red oak.
							Northern red oak----	70	4	
WnmA:										
Whitcomb--------	4A	Slight	Moderate	Slight	Moderate	Severe	White oak-----------	70	4	White ash, green ash, sweetgum, American sycamore, Shumard's oak, swamp white oak, bur oak, pin oak.
							Tuliptree-----------	---	---	
							Northern red oak----	---	---	
							Sweetgum------------	---	---	
							Pin oak-------------	---	---	
WokAH:										
Wilbur----------	8A	Slight	Moderate	Severe	Slight	Severe	Tuliptree-----------	100	8	Green ash, pin oak, bur oak, swamp white oak, sweetgum, American sycamore.
WokAW										
Wilbur----------	8A	Slight	Slight	Slight	Slight	Severe	Tuliptree-----------	100	8	White ash, green ash, tuliptree, eastern white pine, white oak, northern red oak.
WomAM:										
Wilhite---------	---	Slight	Severe	Severe	Severe	---	None----------------	---	---	None.

See footnote at end of table.

Table 10.--Forestland Management and Productivity--Continued

Map symbol and soil name	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Plant competi-tion	Potential productivity: Common trees	Site index	Produc-tivity index*	Suggested trees to plant
									m3/ha	
WprAW:										
Wirt------------	8A	Slight	Slight	Slight	Slight	Severe	Tuliptree-----------	105	8	White ash, green ash, black walnut, tuliptree, eastern white pine, white oak, bur oak, northern red oak, Shumard's oak, black cherry.
WpuAH:										
Wirt------------	8A	Slight	Moderate	Severe	Slight	Severe	Tuliptree-----------	105	8	Green ash, American sycamore, sweetgum, swamp white oak, bur oak, pin oak.

*Productivity index is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

Table 11.--Recreation

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation. Absence of an entry indicates that no rating is applicable. See text for definitions of terms used in this table.)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AddA:					
Avonburg--------	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
AddB2:					
Avonburg--------	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
BbhA:					
Bartle----------	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
BbhB:					
Bartle----------	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
BcrAW:					
Beanblossom-----	Severe: flooding.	Slight------------	Moderate: slope, small stones, flooding.	Slight------------	Moderate: flooding.
BdoB:					
Bedford---------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
BfbC2:					
Blocher, soft bedrock--------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Weddel----------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
BfcC3:					
Blocher, soft bedrock--------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Weddel----------	Severe: wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness, slope.
BnyD3:					
Bonnell---------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
BobE5:					
Bonnell---------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
BodAH:					
Bonnie----------	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
BodAW:					
Bonnie----------	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
BvoG:					
Brownstown------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Gilwood---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
CkkB2:					
Cincinnati------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Slight.
CldC2:					
Cincinnati------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Blocher---------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
CldC3:					
Cincinnati------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Blocher---------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
CleC5:					
Cincinnati------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
CleC5:					
Blocher---------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ClfA:					
Cobbsfork	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.
ComC:					
Coolville	Severe: wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness, slope.
ComC3:					
Coolville	Severe: wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness, slope.
ConD:					
Coolville	Severe: slope, wetness.	Severe: slope.	Severe: slope, wetness.	Severe: erodes easily.	Severe: slope.
Rarden	Severe: slope, wetness.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
CwaAQ:					
Cuba	Severe: flooding.	Slight	Slight	Slight	Slight.
DbrG:					
Deam	Severe: slope, percs slowly.	Severe: slope.	Severe: slope, percs slowly.	Severe: slope, erodes easily.	Severe: slope.
DddB2:					
Deputy	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
DddC2:					
Deputy	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
DddC3:					
Deputy	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
DfnA:					
Dubois	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
DfnB2:					
Dubois	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DfoA:					
Dubois----------	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Urban land.					
EepA:					
Elkinsville-----	Slight-----------	Slight-----------	Slight-----------	Slight-----------	Slight.
EepB:					
Elkinsville-----	Slight-----------	Slight-----------	Moderate: slope.	Slight-----------	Slight.
EepF:					
Elkinsville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
GgfD:					
Gilwood---------	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
Wrays-----------	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
GmaG:					
Gnawbone--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Kurtz-----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
HccA:					
Haubstadt-------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
HccB2:					
Haubstadt-------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate. wetness.	Moderate: wetness.
HcdC2:					
Haubstadt-------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
Shircliff-------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
HceC3:					
Haubstadt-------	Severe: wetness.	Moderate: slope, wetness, percs slowly.	Severe: slope, wetness.	Severe: erodes easily.	Moderate: wetness, slope.
Shircliff-------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
HcfB:					
Haubstadt-------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Urban land.					
HcgAH:					
Haymond---------	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
HcgAQ:					
Haymond---------	Severe: flooding.	Slight-----------	Slight-----------	Slight-----------	Slight.
HcgAW:					
Haymond---------	Severe: flooding.	Slight-----------	Moderate: flooding.	Slight-----------	Moderate: flooding.
HeeG:					
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
HerE:					
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Bonnell---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
HleAW:					
Holton----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
JaeB2:					
Jennings--------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
JafC2:					
Jennings--------	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.
Blocher, hard bedrock--------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
JafC3:					
Jennings--------	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.
Blocher, hard bedrock--------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
MhyA:					
Medora----------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
MhyB2:					
Medora----------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
MhyC2:					
Medora----------	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.
MhyC3:					
Medora----------	Severe: wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.
NaaA:					
Nabb------------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
NaaB2:					
Nabb------------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
NamF:					
Negley----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
NanD3:					
Negley----------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
OfbAW:					
Oldenburg-------	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Slight------------	Moderate: flooding.
PcrA:					
Pekin-----------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
PcrB2:					
Pekin-----------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
PcrC2:					
Pekin-----------	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
PcrC3:					
Pekin-----------	Severe: wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.
PhaA:					
Peoga-----------	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
PlpAH:					
Piopolis--------	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
Pml:					
Pits, quarry----	Not rated---------	Not rated---------	Not rated---------	Not rated---------	Not rated.
RblC3:					
Rarden----------	Severe: wetness.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, thin layer, area reclaim.
RblD3:					
Rarden----------	Severe: slope, wetness.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
RbmD5:					
Rarden----------	Severe: too clayey.	Severe: too clayey.	Severe: slope, too clayey.	Severe: too clayey.	Severe too clayey, slope.
RptG:					
Rohan-----------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: slope, depth to rock, droughty.
Jessietown------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
SceA:					
Scottsburg------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
SceB2:					
Scottsburg------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
SoaB:					
Spickert--------	Severe: percs slowly.	Severe: percs slowly.	Severe: percs slowly.	Moderate: wetness.	Moderate: wetness.
SoaC2:					
Spickert--------	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: wetness, slope.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
StaAH:					
Steff	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
StaAQ:					
Steff	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
StaAW:					
Steff	Severe: flooding.	Moderate: wetness.	Moderate: flooding, wetness.	Moderate: wetness.	Moderate: wetness, flooding.
StdAH:					
Stendal	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
StdAQ:					
Stendal	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
StdAW:					
Stendal	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
StmB2:					
Stonehead	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Slight.
StmC:					
Stonehead	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
ThaC2:					
Trappist	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope, thin layer.
ThbC3:					
Trappist	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope, thin layer, droughty.
ThbD5:					
Trappist	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Severe: slope.
ThcD3:					
Trappist	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Rohan	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Moderate: slope.	Severe: slope, depth to rock, droughty.

Table 11.--Recreation--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
ThdD:					
Trappist	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Rohan	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.	Severe: slope, depth to rock, droughty.
Uaa:					
Udorthents	Not rated	Not rated	Not rated	Not rated	Not rated.
W:					
Water	Not rated	Not rated	Not rated	Not rated	Not rated.
WaaAH:					
Wakeland	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
WaaAW:					
Wakeland	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
WedB2:					
Weddel	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
WhcD:					
Wellrock	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Gnawbone	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
WnmA:					
Whitcomb	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
WokAH:					
Wilbur	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
WokAW:					
Wilbur	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
WomAM:					
Wilhite	Severe: flooding, ponding.	Severe: ponding.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
WprAW:					
Wirt	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: flooding.
WpuAH:					
Wirt	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.

Table 12.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
AddA:										
Avonburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
AddB2:										
Avonburg	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
BbhA:										
Bartle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
BbhB:										
Bartle	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
BcrAW:										
Beanblossom	Fair	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
BdoB:										
Bedford	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
BfbC2:										
Blocher, soft bedrock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Weddel	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
BfcC3:										
Blocher, soft bedrock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Weddel	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Very poor.	Good	Very poor.
BnyD3:										
Bonnell	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
BobE5:										
Bonnell	Very poor.	Very poor.	Poor	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
Hickory	Very poor.	Very poor.	Poor	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
BodAH, BodAW:										
Bonnie	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
BvoG:										
Brownstown	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Gilwood	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very. poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
CkkB2:										
Cincinnati------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CldC2:										
Cincinnati------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Blocher---------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CldC3:										
Cincinnati------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Blocher---------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CleC5:										
Cincinnati------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Blocher---------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ClfA:										
Cobbsfork-------	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
ComC:										
Coolville-------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ComC3:										
Coolville-------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ConD:										
Coolville-------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rarden----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
CwaAQ:										
Cuba------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DbrG:										
Deam------------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
DddB2:										
Deputy----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DddC2:										
Deputy----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
DddC3:										
Deputy----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
DfnA:										
Dubois	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
DfnB2:										
Dubois	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
DfoA:										
Dubois	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Urban land.										
EepA:										
Elkinsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EepB:										
Elkinsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
EepF:										
Elkinsville	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
GgfD:										
Gilwood	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
Wrays	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
GmaG:										
Gnawbone	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Kurtz	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
HccA:										
Haubstadt	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
HccB2:										
Haubstadt	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HcdC2:										
Haubstadt	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Shircliff	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
HceC3:										
Haubstadt	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Shircliff	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
HcfB:										
Haubstadt	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land.										
HcgAH:										
Haymond	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
HcgAQ:										
Haymond	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HcgAW:										
Haymond	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
HeeG:										
Hickory	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
HerE:										
Hickory	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Bonnell	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
HleAW:										
Holton	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
JaeB2:										
Jennings	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
JafC2:										
Jennings	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Blocher, hard bedrock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
JafC3:										
Jennings	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Blocher, hard bedrock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
MhyA:										
Medora	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
MhyB2:										
Medora	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MhyC2:										
Medora	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
MhyC3:										
Medora----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very Poor.
NaaA:										
Nabb------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
NaaB2:										
Nabb------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NamF:										
Negley----------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
NanD3:										
Negley----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
OfbAW:										
Oldenburg-------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
PcrA:										
Pekin-----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
PcrB2:										
Pekin-----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PcrC2:										
Pekin-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PcrC3:										
Pekin-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PhaA:										
Peoga-----------	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
PlpAH:										
Piopolis--------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Pml.										
Pits, quarry										
RblC3:										
Rarden----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
RblD3:										
Rarden----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
RbmD5:										
Rarden----------	Very poor.	Very poor.	Poor	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
RptG:										
Rohan-----------	Very poor.	Very poor.	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Jessietown------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
SceA:										
Scottsburg------	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
SceB2:										
Scottsburg------	Good	Good	Good	Fair	Good	Poor	Very poor.	Good	Good	Very poor.
SoaB:										
Spickert--------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SoaC2:										
Spickert--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
StaAH:										
Steff-----------	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
StaAQ:										
Steff-----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
StaAW:										
Steff-----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
StdAH:										
Stendal---------	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
StdAQ:										
Stendal---------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
StdAW:										
Stendal---------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
StmB2:										
Stonehead-------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
StmC:										
Stonehead-------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ThaC2:										
Trappist--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ThbC3:										
Trappist--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ThbD5:										
Trappist--------	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
ThcD3:										
Trappist----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rohan------------	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.
ThdD:										
Trappist----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rohan------------	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Uaa. Udorthents										
W. Water										
WaaAH:										
Wakeland----------	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
WaaAW:										
Wakeland----------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
WedB2:										
Weddel-----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WhcD:										
Wellrock----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Gnawbone----------	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
WnmA:										
Whitcomb----------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
WokAH:										
Wilbur-----------	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
WokAW:										
Wilbur-----------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
WomAM:										
Wilhite----------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
WprAW:										
Wirt-------------	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WpuAH:										
Wirt-------------	Poor	Fair	Fair	Good	Good	Very Poor.	Very poor.	Fair	Good	Very poor.

Table 13.--Building Site Development

(See text for definitions of terms used in this table. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AddA:						
Avonburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
AddB2:						
Avonburg	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
BbhA:						
Bartle	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
BbhB:						
Bartle	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
BcrAW:						
Beanblossom	Moderate: large stones, wetness, flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.	Moderate: flooding.
BdoB:						
Bedford	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
BfbC2:						
Blocher, soft bedrock	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
Weddel	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
BfcC3:						
Blocher, soft bedrock	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
Weddel	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: slope, wetness.	Severe: low strength, frost action.	Moderate: wetness, slope.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
BnyD3:						
Bonnell	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
BobE5:						
Bonnell	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
Hickory	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
BodAH:						
Bonnie	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
BodAW:						
Bonnie	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding.
BvoG:						
Brownstown	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Gilwood	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
CkkB2:						
Cincinnati	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, slope, shrink-swell.	Severe: frost action, low strength.	Slight.
CldC2:						
Cincinnati	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
Blocher	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
CldC3:						
Cincinnati	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action, low strength.	Moderate: slope.
Blocher	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
CleC5:						
Cincinnati------	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: slope.
Blocher---------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
ClfA:						
Cobbsfork-------	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, wetness, frost action.	Severe: ponding.
ComC:						
Coolville-------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
ComC3:						
Coolville-------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
ConD:						
Coolville-------	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: low strength, slope, frost action.	Severe: slope.
Rarden----------	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: low strength, slope, frost action.	Severe: slope.
CwaAQ:						
Cuba------------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.	Slight.
DbrG:						
Deam------------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
DddB2:						
Deputy----------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
DddC2:						
Deputy----------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
DddC3:						
Deputy----------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
DfnA:						
Dubois	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
DfnB2:						
Dubois	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
DfoA:						
Dubois	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
Urban land.						
EepA:						
Elkinsville	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: frost action, low strength.	Slight.
EepB:						
Elkinsville	Slight	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: frost action, low strength.	Slight.
EepF:						
Elkinsville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, frost action, low strength.	Severe: slope.
GgfD:						
Gilwood	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: frost action.	Moderate: slope, depth to rock.
Wrays	Moderate: depth to rock, slope.	Moderate: shrink-swell, slope.	Moderate: depth to rock, slope, shrink-swell.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
GmaG:						
Gnawbone	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Kurtz	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
HccA:						
Haubstadt	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Moderate: wetness.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
HccB2:						
Haubstadt-------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
HcdC2:						
Haubstadt-------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
Shircliff-------	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, frost action.	Moderate: wetness, slope.
HceC3:						
Haubstadt-------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
Shircliff-------	Severe: wetness.	Severe: shrink-swell.	Severe: wetness, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, frost action.	Moderate: wetness, slope.
HcfB:						
Haubstadt-------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
Urban land.						
HcgAH:						
Haymond---------	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.	Severe: flooding.
HcgAQ:						
Haymond---------	Slight---------	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: frost action.	Slight.
HcgAW:						
Haymond---------	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.	Moderate: flooding.
HeeG:						
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
HerE:						
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Bonnell---------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
HleAW:						
Holton----------	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness.
JaeB2:						
Jennings--------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
JafC2:						
Jennings--------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
Blocher, hard bedrock--------	Severe: wetness.	Moderate: wetness, slope, shrink-swell.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
JafC3:						
Jennings--------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: frost action, low strength.	Moderate: wetness, slope.
Blocher, hard bedrock--------	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
MhyA:						
Medora----------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: frost action, low strength.	Moderate: wetness.
MhyB2:						
Medora----------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, slope, shrink-swell.	Severe: frost action.	Moderate: wetness.
MhyC2:						
Medora----------	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: wetness, slope.
MhyC3:						
Medora----------	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: frost action.	Moderate: wetness, slope.
NaaA:						
Nabb------------	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Moderate: wetness.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
NaaB2:						
Nabb	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
NamF:						
Negley	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
NanD3:						
Negley	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
OfbAW:						
Oldenburg	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
PcrA:						
Pekin	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Severe: low strength, frost action.	Moderate: wetness.
PcrB2:						
Pekin	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Severe: low strength, frost action.	Moderate: wetness.
PcrC2:						
Pekin	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
PcrC3:						
Pekin	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
PhaA:						
Peoga	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding, frost action.	Severe: ponding.
PlpAH:						
Piopolis	Severe: ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding.
Pml:						
Pits, quarry	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated.
RblC3:						
Rarden	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Severe: low strength, frost action.	Moderate: slope, thin layer, area reclaim.
RblD3:						
Rarden	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: wetness, slope, slippage.	Severe: low strength, slope, frost action.	Severe: slope.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
RbmD5:						
Rarden	Severe: wetness, slippage.	Severe: wetness, slippage.	Severe: wetness, slippage.	Severe: wetness, slope, slippage.	Severe: low strength, frost action.	Severe slope, too clayey.
RptG:						
Rohan	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock, droughty.
Jessietown	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: frost action, slope.	Severe: slope.
SceA:						
Scottsburg	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Moderate: wetness.
SceB2:						
Scottsburg	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength, frost action.	Moderate: wetness.
SoaB:						
Spickert	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
SoaC2:						
Spickert	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: wetness, slope.
StaAH:						
Steff	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Severe: flooding.
StaAQ:						
Steff	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Moderate: wetness.
StaAW:						
Steff	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength, flooding.	Moderate: wetness, flooding.
StdAH:						
Stendal	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
StdAQ:						
Stendal	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
StdAW:						
Stendal	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
StmB2:						
Stonehead	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Slight.
StmC:						
Stonehead	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: wetness.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
ThaC2:						
Trappist	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope, thin layer.
ThbC3:						
Trappist	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope, thin layer, droughty.
ThbD5:						
Trappist	Severe: depth to rock.	Moderate: shrink-swell, slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Severe: low strength, frost action.	Severe: slope.
ThcD3:						
Trappist	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: low strength, frost action, slope.	Severe: slope.
Rohan	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock, droughty.
ThdD:						
Trappist	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: low strength, slope, frost action.	Severe: slope.
Rohan	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock, droughty.
Uaa:						
Udorthents	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated.

Table 13.--Building Site Development--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
W:						
Water	Not rated	Not rated	Not rated	Not rated	Not rated	Not rated.
WaaAH:						
Wakeland	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness, flooding.
WaaAW:						
Wakeland	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, frost action.	Severe: wetness.
WedB2:						
Weddel	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell, slope.	Severe: low strength, frost action.	Moderate: wetness.
WhcD:						
Wellrock	Moderate: slope.	Moderate: shrink-swell, slope.	Moderate: slope.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope.
Gnawbone	Moderate: depth to rock, slope.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Severe: low strength, frost action.	Moderate: slope, depth to rock.
WnmA:						
Whitcomb	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness, frost action.	Severe: wetness.
WokAH:						
Wilbur	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.	Severe: flooding.
WokAW:						
Wilbur	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.	Moderate: wetness, flooding.
WomAM:						
Wilhite	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: shrink-swell, low strength, ponding.	Severe: ponding, flooding.
WprAW:						
Wirt	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
WpuAH:						
Wirt	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.	Severe: flooding.

Table 14.--Sanitary Facilities

(See text for definitions of terms used in this table. Absence of an entry indicates that the soil was not rated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AddA:					
Avonburg	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
AddB2:					
Avonburg	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
BbhA:					
Bartle	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
BbhB:					
Bartle	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
BcrAW:					
Beanblossom	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, depth to rock, seepage.	Severe: flooding, seepage.	Poor: seepage, small stones.
BdoB:					
Bedford	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, small stones, wetness.
BfbC2:					
Blocher, soft bedrock	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
Weddel	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
BfcC3:					
Blocher, soft bedrock	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: wetness, slope.	Poor: too clayey, slope, wetness.
Weddel	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: wetness, slope.	Poor: wetness.
BnyD3:					
Bonnell	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BobE5:					
Bonnell	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Hickory	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
BodAH:					
Bonnie	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
BodAW:					
Bonnie	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
BvoG:					
Brownstown	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Gilwood	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
CkkB2:					
Cincinnati	Severe: wetness, percs slowly.	Modetate: seepage, slope.	Moderate: wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
CldC2:					
Cincinnati	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, slope, too clayey.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Blocher	Severe: wetness, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
CldC3:					
Cincinnati	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, slope, too clayey.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Blocher	Severe: wetness, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
CleC5:					
Cincinnati------	Severe: wetness, percs slowly.	Severe: slope.	Moderate: wetness, slope, too clayey.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Blocher---------	Severe: wetness, percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
ClfA:					
Cobbsfork-------	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding, thin layer.
ComC:					
Coolville-------	Severe: wetness, percs slowly.	Severe: slope, slippage.	Severe: seepage, too clayey, wetness.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
ComC3:					
Coolville-------	Severe: wetness, percs slowly.	Severe: slope, slippage.	Severe: seepage, too clayey, wetness.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
ConD:					
Coolville-------	Severe: wetness, percs slowly, slope.	Severe: slope, slippage.	Severe: seepage, too clayey, wetness.	Severe: slope, slippage.	Poor: too clayey, hard to pack, slope.
Rarden----------	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, slope, slippage.	Severe: depth to rock, wetness, slope.	Severe: depth to rock, slope, slippage.	Poor: depth to rock, too clayey, hard to pack.
CwaAQ:					
Cuba------------	Moderate: flooding.	Severe: seepage.	Severe: seepage.	Moderate: flooding.	Good.
DbrG:					
Deam------------	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
DddB2:					
Deputy----------	Severe: wetness, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, wetness, too clayey.	Moderate: depth to rock, wetness.	Poor: too clayey, hard to pack.
DddC2:					
Deputy----------	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness, too clayey.	Moderate: depth to rock, wetness, slope.	Poor: too clayey, hard to pack.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DddC3:					
Deputy----------	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness, too clayey.	Moderate: depth to rock, wetness, slope.	Poor: too clayey, hard to pack.
DfnA:					
Dubois----------	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
DfnB2:					
Dubois----------	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
DfoA:					
Dubois----------	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Urban land.					
EepA:					
Elkinsville-----	Moderate: percs slowly.	Moderate: seepage.	Slight-----------	Slight-----------	Fair: too clayey.
EepB:					
Elkinsville-----	Moderate: percs slowly.	Moderate: seepage, slope.	Slight-----------	Slight-----------	Fair: too clayey.
EepF:					
Elkinsville-----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
GgfD:					
Gilwood---------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, small stones.
Wrays-----------	Severe: percs slowly.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Fair: depth to rock, too clayey, slope.
GmaG:					
Gnawbone--------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
Kurtz-----------	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
HccA:					
Haubstadt-------	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
HccB2:					
Haubstadt-------	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
HcdC2:					
Haubstadt-------	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: too clayey, wetness.
Shircliff-------	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
HceC3:					
Haubstadt-------	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Shircliff-------	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
HcfB:					
Haubstadt-------	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Urban land.					
HcgAH:					
Haymond---------	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.
HcgAQ:					
Haymond---------	Moderate: flooding.	Moderate: seepage.	Moderate: flooding.	Moderate: flooding.	Good.
HcgAW:					
Haymond---------	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.
HeeG:					
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
HerE:					
Hickory---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Bonnell---------	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
HleAW:					
Holton----------	Severe: flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness.	Poor: wetness.
JaeB2:					
Jennings--------	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: depth to rock, wetness.	Moderate: wetness.	Fair: too clayey, wetness.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
JafC2:					
Jennings	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Blocher, hard bedrock	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
JafC3:					
Jennings	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
Blocher, hard bedrock	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: wetness, slope.	Poor: too clayey, hard to pack.
MhyA:					
Medora	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, small stones, wetness.
MhyB2:					
Medora	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, small stones, wetness.
MhyC2:					
Medora	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, small stones, slope.
MhyC3:					
Medora	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Moderate: wetness, slope.	Poor: wetness.
NaaA:					
Nabb	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
NaaB2:					
Nabb	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
NamF:					
Negley	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
NanD3:					
Negley	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
OfbAW:					
Oldenburg-------	Severe: flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Fair: wetness.
PcrA:					
Pekin-----------	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
PcrB2:					
Pekin-----------	Severe: wetness, percs slowly.	Moderate: slope, seepage.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
PcrC2:					
Pekin-----------	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope, wetness.
PcrC3:					
Pekin-----------	Severe: wetness, percs slowly.	Severe: slope.	Severe: wetness.	Severe: wetness.	Poor: wetness.
PhaA:					
Peoga-----------	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Poor: ponding.
PlpAH:					
Piopolis--------	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
Pml:					
Pits, quarry----	Not rated---------	Not rated---------	Not rated---------	Not rated---------	Not rated.
RblC3:					
Rarden----------	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, slope, slippage.	Severe: depth to rock, wetness, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
RblD3:					
Rarden----------	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, slope, slippage.	Severe: depth to rock, wetness, slope.	Severe: depth to rock, slope, slippage.	Poor: depth to rock, too clayey, hard to pack.
RbmD5:					
Rarden----------	Severe: depth to rock, wetness, percs slowly.	Severe: depth to rock, slope, slippage.	Severe: depth to rock, wetness, too clayey.	Severe: depth to rock, slippage.	Poor: depth to rock, too clayey, hard to pack.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
RptG:					
Rohan-----------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Jessietown------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, slope.
SceA:					
Scottsburg------	Poor: wetness, percs slowly.	Moderate: seepage.	Severe: depth to rock, wetness.	Moderate: wetness.	Fair: too clayey, wetness.
SceB2:					
Scottsburg------	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: depth to rock, wetness.	Moderate: wetness.	Fair: too clayey, wetness.
SoaB:					
Spickert--------	Severe: wetness, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, wetness.	Moderate: depth to rock, wetness.	Fair: depth to rock, too clayey, wetness.
SoaC2:					
Spickert--------	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock, wetness.	Moderate: depth to rock, wetness, slope.	Fair: depth to rock, too clayey, slope.
StaAH:					
Steff-----------	Severe: flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Fair: wetness.
StaAQ:					
Steff-----------	Severe: wetness.	Severe: flooding, wetness, seepage.	Severe: wetness, seepage.	Severe: wetness, seepage.	Fair: wetness.
StaAW:					
Steff-----------	Severe: flooding, wetness.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Severe: flooding, wetness, seepage.	Fair: wetness.
StdAH:					
Stendal---------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
StdAQ:					
Stendal---------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
StdAW:					
Stendal---------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
StmB2:					
Stonehead-------	Severe: wetness, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock.	Moderate: depth to rock, wetness.	Fair: too clayey, wetness.
StmC:					
Stonehead-------	Severe: wetness, percs slowly.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, wetness, slope.	Fair: too clayey, slope, wetness.
ThaC2:					
Trappist--------	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: too clayey, hard to pack.
ThbC3:					
Trappist--------	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: too clayey, hard to pack.
ThbD5:					
Trappist--------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
ThcD3:					
Trappist--------	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: too clayey, hard to pack.
Rohan-----------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
ThdD:					
Trappist--------	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: too clayey, hard to pack.
Rohan-----------	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
Uaa:					
Udorthents------	Not rated---------	Not rated---------	Not rated---------	Not rated---------	Not rated.
W:					
Water-----------	Not rated---------	Not rated---------	Not rated---------	Not rated---------	Not rated.
WaaAH:					
Wakeland--------	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WaaAW:					
Wakeland	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
WedB2:					
Weddel	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: depth to rock, wetness, too clayey.	Moderate: wetness.	Fair: too clayey, wetness.
WhcD:					
Wellrock	Severe: percs slowly.	Severe: slope.	Severe: depth to rock.	Moderate: depth to rock, slope.	Fair: too clayey, slope.
Gnawbone	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
WnmA:					
Whitcomb	Severe: wetness, percs slowly.	Moderate: seepage.	Severe: depth to rock, wetness.	Severe: wetness.	Poor: wetness.
WokAH:					
Wilbur	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
WokAW:					
Wilbur	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
WomAM:					
Wilhite	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
WprAW:					
Wirt	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Good.
WpuAH:					
Wirt	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Good.

Table 15.--Construction Materials

(See text for definitions of terms used in this table. Absence of an entry indicates that the soil was not rated. The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
AddA, AddB2:				
Avonburg	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BbhA, BbhB:				
Bartle	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BcrAW:				
Beanblossom	Fair: depth to rock, thin layer, large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
BdoB:				
Bedford	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
BfbC2, BfcC3:				
Blocher, soft bedrock	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Weddel	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, thin layer.
BnyD3:				
Bonnell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
BobE5:				
Bonnell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
Hickory	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
BodAH, BodAW:				
Bonnie	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BvoG:				
Brownstown	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: small stones, slope.
Gilwood	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CkkB2:				
Cincinnati------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
CldC2:				
Cincinnati------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
Blocher---------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CldC3:				
Cincinnati------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
Blocher---------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CleC5:				
Cincinnati------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
Blocher---------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ClfA:				
Cobbsfork-------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ComC, ComC3:				
Coolville-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
ConD:				
Coolville-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Rarden----------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
CwaAQ:				
Cuba------------	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
DbrG:				
Deam------------	Poor: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
DddB2:				
Deputy----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
DddC2:				
Deputy----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer, slope.
DddC3:				
Deputy----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
DfnA, DfnB2:				
Dubois----------	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
DfoA:				
Dubois----------	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Urban land.				
EepA, EepB:				
Elkinsville-----	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
EepF:				
Elkinsville-----	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
GgfD:				
Gilwood---------	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Wrays-----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
GmaG:				
Gnawbone--------	Poor: depth to rock, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Kurtz-----------	Poor: slope, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
HccA, HccB2:				
Haubstadt-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer, too clayey.
HcdC2, HceC3:				
Haubstadt-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer, too clayey, slope.
Shircliff-------	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
HcfB:				
Haubstadt-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: thin layer, too clayey.
Urban land.				
HcgAH, HcgAQ, HcgAW:				
Haymond---------	Good-------------------	Improbable: excess fines.	Improbable: excess fines.	Good.
HeeG:				
Hickory---------	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
HerE:				
Hickory---------	Fair: slope, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Bonnell---------	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
HleAW:				
Holton----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
JaeB2:				
Jennings--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
JafC2, JafC3:				
Jennings--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer, slope.
Blocher, hard bedrock--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MhyA, MhyB2, MhyC2:				
Medora----------	Fair: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
MhyC3:				
Medora----------	Fair: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
NaaA, NaaB2:				
Nabb------------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
NamF:				
Negley----------	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
NanD3:				
Negley----------	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
OfbAW:				
Oldenburg-------	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
PcrA, PcrB2:				
Pekin-----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
PcrC2, PcrC3:				
Pekin-----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer, slope.
PhaA:				
Peoga-----------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Pml.				
Pits, quarry				
PlpAH:				
Piopolis--------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
RblC3, RblD3, RbmD5:				
Rarden----------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
RptG:				
Rohan-----------	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Jessietown------	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
SceA, SceB2:				
Scottsburg------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
SoaB:				
Spickert--------	Fair: depth to rock, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
SoaC2:				
Spickert--------	Fair: depth to rock, low strength, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, slope.
StaAH:				
Steff-----------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
StaAQ:				
Steff-----------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
StaAW:				
Steff-----------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
StdAH:				
Stendal---------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
StdAQ:				
Stendal---------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
StdAW:				
Stendal---------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
StmB2:				
Stonehead-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer.
StmC:				
Stonehead-------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, thin layer, slope.
ThaC2:				
Trappist--------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
ThbC3:				
Trappist--------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
ThbD5:				
Trappist--------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
ThcD3:				
Trappist--------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
Rohan-----------	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
ThdD:				
Trappist--------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
ThdD:				
Rohan-----------	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Uaa. Udorthents				
W. Water				
WaaAH:				
Wakeland--------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WaaAW:				
Wakeland--------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WedB2:				
Weddel----------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, thin layer.
WhcD:				
Wellrock--------	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
Gnawbone--------	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
WnmA:				
Whitcomb--------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WokAH:				
Wilbur----------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
WokAW:				
Wilbur----------	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.

Table 15.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
WomAM:				
Wilhite	Poor: shrink-swell, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
WprAW:				
Wirt	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
WpuAH:				
Wirt	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.

Table 16.--Water Management

(See text for definitions of terms used in this table. Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
AddA:							
Avonburg--------	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
AddB2:							
Avonburg--------	Moderate: seepage, slope.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
BbhA:							
Bartle----------	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
BbhB:							
Bartle----------	Moderate: seepage, slope.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
BcrAW:							
Beanblossom-----	Severe: seepage.	Severe: seepage.	Moderate: large stones, deep to water depth to rock	Limitation: deep to water	Limitation: erodes easily flooding, large stones.	Limitation: erodes easily large stones.	Limitation: erodes easily, large stones, droughty.
BdoB:							
Bedford---------	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
BfbC2:							
Blocher, soft bedrock substratum-----	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
Weddel----------	Severe: slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
BfcC3:							
Blocher, soft bedrock substratum-----	Severe: slope.	Moderate: hard to pack, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
Weddel----------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
BnyD3:							
Bonnell---------	Severe: slope.	Moderate: hard to pack, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: percs slowly, slope.	Limitation: slope.	Limitation: slope.
BobE5:							
Bonnell---------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: percs slowly, slope.	Limitation: percs slowly, slope.	Limitation: percs slowly, slope.
Hickory---------	Severe: slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: slope.	Limitation: slope.	Limitation: slope.
BodAH:							
Bonnie----------	Slight--------	Severe: ponding.	Severe: slow refill.	Limitation: flooding, frost action, ponding.	Limitation: erodes easily flooding, ponding.	Limitation: erodes easily ponding.	Limitation: erodes easily, wetness.
BodAW:							
Bonnie----------	Slight--------	Severe: ponding.	Severe: slow refill.	Limitation: flooding, frost action, ponding.	Limitation: erodes easily flooding, ponding.	Limitation: erodes easily ponding.	Limitation: erodes easily, wetness.
BvoG:							
Brownstown------	Severe: seepage. slope.	Severe: large stones, seepage.	Severe: no water.	Limitation: deep to water	Limitation: large stones, slope, droughty.	Limitation: large stones, slope, depth to rock	Limitation: erodes easily, large stones, slope, droughty.
Gilwood---------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily large stones, slope, depth to rock	Limitation: erodes easily, large stones, slope.
CkkB2:							
Cincinnati------	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CldC2:							
Cincinnati------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope, wetness.	Limitation: erodes easily, percs slowly, rooting depth, slope.
Blocher---------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
CldC3:							
Cincinnati------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope, wetness.	Limitation: erodes easily, percs slowly, rooting depth, slope.
Blocher---------	Severe: slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
CleC5:							
Cincinnati------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily slope.	Limitation: erodes easily percs slowly, rooting depth slope, wetness.	Limitation: erodes easily, percs slowly, rooting depth, slope.
Blocher---------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
ClfA:							
Cobbsfork-------	Moderate: seepage.	Severe: piping, ponding.	Severe: no water.	Limitation: frost action, percs slowly, ponding.	Limitation: erodes easily percs slowly, rooting depth ponding.	Limitation: erodes easily percs slowly, ponding.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
ComC:							
Coolville-------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope, wetness.
ComC3:							
Coolville-------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope, wetness.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ConD:							
Coolville-------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope, wetness.
Rarden----------	Severe: slope.	Severe: hard to pack, thin layer.	Severe: no water.	Limitation: frost action, percs slowly, depth to rock	Limitation: erodes easily percs slowly, slope.	Limitation: area reclaim erodes easily percs slowly, slope.	Limitation: area reclaim, erodes easily, percs slowly, slope.
CwaAQ:							
Cuba------------	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily.
DbrG:							
Deam------------	Severe: slope.	Moderate: hard to pack, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, depth to rock	Limitation: erodes easily, percs slowly, slope, droughty.
DddB2:							
Deputy----------	Moderate: seepage, slope, depth to rock	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, wetness.	Limitation: erodes easily, percs slowly.
DddC2:							
Deputy----------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
DddC3:							
Deputy----------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
DfnA:							
Dubois----------	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
DfnB2:							
Dubois----------	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
DfoA:							
Dubois----------	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
Urban land.							
EepA:							
Elkinsville-----	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily.
EepB:							
Elkinsville-----	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily	Limitation: erodes easily.
EepF:							
Elkinsville-----	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
GgfD:							
Gilwood---------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily large stones, slope, depth to rock	Limitation: erodes easily, large stones, slope.
Wrays-----------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
GmaG:							
Gnawbone--------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, slope, depth to rock.
Kurtz-----------	Severe: slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
HccA:							
Haubstadt-------	Moderate: seepage.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
HccB2:							
Haubstadt-------	Moderate: seepage, slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
HcdC2:							
Haubstadt-------	Severe: slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
HcdC2:							
Shircliff-------	Severe: slope.	Severe: wetness.	Severe: slow refill.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
HceC3:							
Haubstadt-------	Severe: slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.
Shircliff-------	Severe: slope.	Severe: wetness.	Severe: slow refill.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
HcfB:							
Haubstadt-------	Moderate: seepage, slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
Urban land.							
HcgAH:							
Haymond---------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily flooding.	Limitation: erodes easily	Limitation: erodes easily.
HcgAW:							
Haymond---------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily flooding.	Limitation: erodes easily	Limitation: erodes easily.
HcgAQ:							
Haymond---------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily.
HeeG:							
Hickory---------	Severe: slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
HerE:							
Hickory---------	Severe: slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
Bonnell---------	Severe: slope.	Moderate: hard to pack.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
HleAW:							
Holton----------	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily, wetness.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
JaeB2:							
Jennings--------	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
JafC2:							
Jennings--------	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.
Blocher, hard bedrock substratum-----	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
JafC3:							
Jennings--------	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.
Blocher, hard bedrock substratum-----	Severe: slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
MhyA:							
Medora----------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
MhyB2:							
Medora----------	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
MhyC2:							
Medora----------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.
MhyC3:							
Medora----------	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
NaaA:							
Nabb------------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
NaaB2:							
Nabb------------	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
NamF:							
Negley----------	Severe: seepage, slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
NanD3:							
Negley----------	Severe: seepage, slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water	Limitation: slope.	Limitation: slope.	Limitation: slope.
OfbAW:							
Oldenburg-------	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave	Limitation: flooding.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily.
PcrA:							
Pekin-----------	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
PcrB2:							
Pekin-----------	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, rooting depth, rooting depth.
PcrC2:							
Pekin-----------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope, wetness.	Limitation: erodes easily, percs slowly, rooting depth, slope.
PcrC3:							
Pekin-----------	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope. wetness.	Limitation: erodes easily, percs slowly, rooting depth, slope.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
PhaA:							
Peoga	Slight	Severe: ponding.	Severe: no water.	Limitation: frost action, percs slowly, ponding.	Limitation: erodes easily percs slowly, rooting depth ponding.	Limitation: erodes easily percs slowly, ponding.	Limitation: erodes easily, percs slowly, rooting depth, wetness.
PlpAH:							
Piopolis	Slight	Severe: ponding.	Severe: slow refill.	Limitation: flooding, percs slowly, ponding.	Limitation: erodes easily percs slowly, ponding.	Limitation: erodes easily percs slowly, ponding.	Limitation: erodes easily, percs slowly, wetness.
Pml. Pits, quarry							
RblC3:							
Rarden	Severe: slope.	Severe: hard to pack, thin layer.	Severe: no water.	Limitation: frost action, percs slowly, depth to rock	Limitation: erodes easily percs slowly, slope.	Limitation: area reclaim erodes easily percs slowly, slope.	Limitation: area reclaim, erodes easily, percs slowly, slope.
RblD3:							
Rarden	Severe: slope.	Severe: hard to pack, thin layer.	Severe: no water.	Limitation: frost action, percs slowly, depth to rock	Limitation: erodes easily percs slowly, slope.	Limitation: area reclaim erodes easily percs slowly, slope.	Limitation: area reclaim, erodes easily, percs slowly, slope.
RbmD5:							
Rarden	Severe: slope.	Severe: hard to pack, thin layer.	Severe: no water.	Limitation: percs slowly, depth to rock	Limitation: slope, droughty.	Limitation: area reclaim percs slowly, slope, depth to rock	Limitation: percs slowly, slope, depth to rock, droughty.
RptG:							
Rohan	Severe: slope, depth to rock	Severe: seepage.	Severe: no water.	Limitation: deep to water	Limitation: slope, depth to rock droughty.	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty.
Jessietown	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, slope, depth to rock.
SceA:							
Scottsburg	Moderate: seepage.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, wetness.	Limitation: erodes easily, percs slowly.
SceB2:							
Scottsburg	Moderate: seepage, slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, wetness.	Limitation: erodes easily, percs slowly.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
SoaB: Spickert	Moderate: seepage, slope, depth to rock	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth wetness.	Limitation: erodes easily, percs slowly, rooting depth.
SoaC2: Spickert	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, rooting depth slope.	Limitation: erodes easily, percs slowly, rooting depth, slope.
StaAH: Steff	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, deep to water	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily.
StaAQ: Steff	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, deep to water	Limitation: frost action.	Limitation: erodes easily	Limitation: erodes easily wetness.	Limitation: erodes easily.
StaAW: Steff	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, deep to water	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily.
StdAH: Stendal	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily, wetness.
StdAQ: Stendal	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Limitation: frost action.	Limitation: erodes easily	Limitation: erodes easily wetness.	Limitation: erodes easily, wetness.
StdAW: Stendal	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily, wetness.
StmB2: Stonehead	Moderate: seepage, slope, depth to rock	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, wetness.	Limitation: erodes easily, percs slowly.
StmC: Stonehead	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
ThaC2: Trappist	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily percs slowly, slope, depth to rock	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, percs slowly, slope, depth to rock.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ThbC3:							
Trappist--------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily percs slowly, slope, depth to rock droughty.	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, percs slowly, slope, depth to rock, droughty.
ThbD5:							
Trappist--------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily percs slowly, slope, depth to rock droughty.	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, percs slowly, slope, depth to rock, droughty.
ThcD3:							
Trappist--------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily percs slowly, slope, depth to rock droughty.	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, percs slowly, slope, depth to rock, droughty.
Rohan-----------	Severe: slope, depth to rock	Severe: seepage.	Severe: no water.	Limitation: deep to water	Limitation: slope, depth to rock droughty.	Limitation: slope, depth to rock	Limitation: slope, depth to rock, droughty.
ThdD:							
Trappist--------	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily percs slowly, slope, depth to rock	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, percs slowly, slope, depth to rock.
Rohan-----------	Severe: slope, depth to rock	Severe: seepage.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope, depth to rock droughty.	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, slope, depth to rock, droughty.
Uaa.							
Udorthents, cut and filled							
W.							
Water							
WaaAH:							
Wakeland--------	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily, wetness.
WaaAW:							
Wakeland--------	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily, wetness.

Table 16.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
WedB2:							
Weddel	Moderate: seepage, slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: erodes easily percs slowly, slope.	Limitation: erodes easily percs slowly, wetness.	Limitation: erodes easily, percs slowly.
WhcD:							
Wellrock	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope.	Limitation: erodes easily slope.	Limitation: erodes easily, slope.
Gnawbone	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily slope, depth to rock	Limitation: erodes easily, slope, depth to rock.
WnmA:							
Whitcomb	Moderate: seepage.	Severe: wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: erodes easily percs slowly.	Limitation: erodes easily percs slowly, wetness.	Limitation: erodes easily, percs slowly, wetness.
WokAH:							
Wilbur	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, deep to water	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily.
WokAW:							
Wilbur	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill, deep to water	Limitation: flooding, frost action.	Limitation: erodes easily flooding.	Limitation: erodes easily wetness.	Limitation: erodes easily.
WomAM:							
Wilhite	Slight	Severe: ponding.	Severe: slow refill.	Limitation: flooding, percs slowly, ponding.	Limitation: flooding, percs slowly, ponding.	Limitation: percs slowly, ponding.	Limitation: percs slowly, wetness.
WprAW:							
Wirt	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily flooding.	Limitation: erodes easily	Limitation: erodes easily.
WpuAH:							
Wirt	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water	Limitation: erodes easily flooding.	Limitation: erodes easily	Limitation: erodes easily.

Table 17.--Engineering Index Properties

(Absence of an entry indicates that data was not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AddA:												
Avonburg--------	0-11	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	11-21	Silt loam------	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-85	23-40	3-15
	21-37	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	90-100	85-90	25-45	5-20
	37-52	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	95-100	90-95	75-85	25-45	5-20
	52-83	Silt loam------	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	95-100	90-95	70-80	25-45	5-20
	83-90	Clay loam------	CL	A-6, A-7-6	0-1	0-1	90-100	85-95	70-90	55-70	36-48	15-25
AddB2:												
Avonburg--------	0-7	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	7-16	Silt loam------	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-85	23-40	3-15
	16-32	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	90-100	85-90	25-45	5-20
	32-42	Silt loam, silty clay loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	95-100	90-95	75-85	25-45	5-20
	42-63	Silt loam------	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	95-100	90-95	70-80	25-45	5-20
	63-80	Clay loam------	CL	A-6, A-7-6	0-1	0-1	90-100	85-95	70-90	55-70	36-48	15-25
BbhA:												
Bartle----------	0-11	Silt loam------	ML, CL-ML	A-4	0	0	100	100	90-100	80-95	18-24	3-7
	11-17	Silt loam------	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-95	20-26	4-8
	17-30	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	24-38	7-14
	30-55	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	24-38	7-14
	55-80	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-95	24-38	7-14
BbhB:												
Bartle----------	0-6	Silt loam------	ML, CL-ML	A-4	0	0	100	100	90-100	80-95	18-24	3-7
	6-12	Silt loam------	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-95	20-26	4-8
	12-26	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	24-38	7-14
	26-59	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	24-38	7-14
	59-80	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	85-100	60-95	24-38	7-14

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BcrAW:												
Beanblossom-----	0-7	Silt loam------	ML, CL-ML	A-4	0	0-2	90-100	85-100	70-100	50-90	18-30	4-10
	7-17	Silt loam, loam, very channery loam.	ML, CL-ML, GC, GM-GC	A-4, A-2-4	0	0-35	40-95	35-90	30-90	20-80	16-30	3-10
	17-54	Very channery silt loam, extremely channery loam.	GW-GM, GC, GM, GM-GC	A-4, A-2-4, A-2-6, A-1	0-15	0-45	15-55	10-50	8-50	6-45	20-32	NP-12
	54-60	Weathered bedrock.	---	---	0	0	0	0	0	0	0-14	NP
BdoB:												
Bedford---------	0-9	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	23-40	3-15
	9-24	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	95-100	85-100	25-50	6-30
	24-51	Silty clay loam, silt loam, gravelly silty clay loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0-10	60-100	55-95	55-95	50-90	25-50	6-30
	51-80	Silty clay, clay, gravelly clay.	CL, CH, MH	A-7-5, A-7-6	0	0-5	60-100	55-95	55-95	50-90	40-80	20-50
BfbC2:												
Blocher, soft bedrock--------	0-8	Silt loam------	CL-ML, CL, ML	A-4, A-6	0	0	100	95-100	90-100	80-90	23-40	3-15
	8-20	Silt loam, loam, clay loam.	CL, CL-ML, ML	A-6, A-7, A-4	0	0	100	95-100	80-100	65-90	23-48	3-27
	20-61	Clay, clay loam, silty clay.	CL, CH,	A-7-6	0	0-5	90-100	85-95	75-95	60-90	43-61	21-35
	61-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Weddel----------	0-8	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	23-40	3-15
	8-30	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	95-100	90-100	80-100	25-50	6-30
	30-50	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	90-100	85-95	75-95	60-90	25-45	5-25
	50-62	Silty clay loam, clay loam, clay.	CL, CH	A-7	0	0	85-100	80-95	70-95	55-90	40-60	15-30
	62-67	Silty clay, silty clay loam.	CL, CH	A-7	0	0-2	95-100	90-100	85-100	80-95	40-60	15-32
	67-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BfcC3:												
Blocher, soft bedrock--------	0-6	Silty clay loam	CL	A-6, A-7-6	0	0	100	95-100	90-100	80-90	33-48	12-27
	6-11	Clay loam------	CL	A-6, A-7-6	0	0	100	95-100	85-100	65-80	27-42	10-27
	11-62	Clay, clay loam, silty clay.	CL, CH	A-7-6	0	0-5	90-100	85-95	75-95	60-90	43-61	21-35
	62-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Weddel----------	0-6	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	80-95	23-40	3-15
	6-17	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	95-100	90-100	80-100	25-50	6-30
	17-38	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	90-100	85-95	75-95	60-90	25-45	5-25
	38-55	Silty clay loam, clay loam, clay.	CL, CH	A-7	0	0	85-100	80-95	70-95	55-90	40-60	15-30
	55-61	Silty clay, silty clay loam.	CL, CH	A-7	0	0-2	95-100	90-100	85-100	80-95	40-60	15-32
	61-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
BnyD3:												
Bonnell---------	0-3	Clay loam------	CL	A-6, A-7-6	0	0-1	98-100	95-100	80-95	60-80	32-44	12-22
	3-32	Clay, clay loam	CH, CL	A-7-6	0	0-1	95-100	90-95	80-95	65-90	30-54	20-33
	32-54	Clay loam, loam	CL	A-6, A-7-6	0	0-1	95-100	90-95	75-95	55-75	35-45	15-25
	54-80	Loam, clay loam	CL, CL-ML	A-4, A-6,	0	0-1	90-100	85-95	70-95	50-65	20-43	4-20
BobE5:												
Bonnell---------	0-3	Clay loam------	CL	A-6, A-7-6	0	0-1	98-100	95-100	80-95	65-80	32-44	12-22
	3-25	Clay, clay loam	CH, CL	A-7-6	0	0-1	95-100	90-95	80-95	65-90	30-54	20-33
	25-38	Clay loam, loam	CL	A-6, A-7-6	0	0-1	95-100	90-95	75-95	55-75	35-45	15-25
	38-60	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7-6	0	0-1	90-100	85-95	70-95	50-65	20-43	4-20
Hickory---------	0-4	Clay loam------	CL	A-6, A-7	0	0-2	95-100	90-98	80-95	60-75	25-44	10-27
	4-40	Clay loam, loam	CL	A-6, A-7	0	0-2	95-100	90-98	75-90	50-75	25-44	8-27
	40-60	Loam-----------	CL, CL-ML	A-4, A-6	0-1	0-2	95-100	85-98	75-90	50-65	20-34	5-19
BodAH:												
Bonnie----------	0-20	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	20-47	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	47-60	Silt loam, silty clay loam.	CL	A-4, A-6	0	0	100	100	90-100	80-100	25-39	8-15
BodAW:												
Bonnie----------	0-8	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	8-38	Silt loam------	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	38-60	Silt loam, silty clay loam.	CL	A-4, A-6	0	0	100	100	90-100	80-100	25-39	8-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
BvoG:												
Brownstown------	0-6	Silt loam------	ML, CL-ML	A-4	0	0-10	85-100	80-100	75-100	60-100	0-25	NP-7
	6-18	Channery silt loam, extremely channery silt loam.	ML, CL-ML, GM-GC, GM	A-4, A-2-4, A-1	0-10	10-50	40-80	35-75	30-75	15-70	0-25	NP-7
	18-36	Extremely channery silt loam, very flaggy silt loam.	GM-GC, GM	A-2-4, A-1, A-4	0-30	30-55	40-60	35-55	30-55	15-50	0-25	NP-7
	36-46	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Gilwood---------	0-6	Silt loam------	ML, CL-ML, CL	A-4	0	0-5	90-100	85-100	80-100	70-100	18-25	3-8
	6-11	Silt loam, channery silt loam.	CL-ML, CL	A-4	0	0-5	80-100	75-95	70-95	60-95	22-28	5-9
	11-22	Channery silt loam.	CL-ML, CL, GM-GC, GC	A-4, A-6	0-5	0-10	60-80	55-75	50-75	40-75	24-32	6-12
	22-32	Very channery silt loam, extremely channery silt loam.	GM, GC, ML, CL	A-2-4, A-1-B, A-4	0-10	10-40	35-70	30-60	25-60	15-60	18-30	3-10
	32-42	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
CkkB2:												
Cincinnati------	0-8	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	8-31	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	90-100	80-95	24-45	5-25
	31-72	Loam, silt loam	CL, CL-ML	A-6, A-4, A-7-6	0	0	98-100	95-100	85-95	55-85	24-40	8-24
	72-80	Clay loam, loam	CL	A-6, A-4, A-7-6	0	0-2	90-100	85-95	70-90	55-70	25-50	8-30
CldC2:												
Cincinnati------	0-8	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	8-24	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	90-100	80-95	24-45	5-25
	24-74	Loam, silt loam	CL, CL-ML	A-6, A-4, A-7-6	0	0	98-100	95-100	85-95	55-85	24-40	8-24
	74-80	Clay loam, loam	CL	A-6, A-4, A-7-6	0	0-2	90-100	85-95	70-90	55-70	25-50	8-30
Blocher---------	0-7	Silt loam------	CL-ML, ML, CL	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	7-17	Silt loam, silty clay loam, loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	80-100	65-90	24-48	5-27
	17-44	Clay loam, clay	CL, CH	A-7-6, A-6	0	0	90-100	85-95	75-95	60-75	30-53	11-33
	44-76	Clay loam, clay	CL	A-6, A-7-6	0	0-2	95-100	90-95	75-95	60-75	25-50	11-30
	76-80	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0-2	95-100	90-95	75-90	55-70	19-40	4-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CldC3:												
Cincinnati------	0-5	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	5-14	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	90-100	80-95	24-45	5-25
	14-35	Loam, silt loam	CL, CL-ML	A-6, A-4,	0	0	98-100	95-100	85-95	55-85	24-40	8-24
	35-78	Clay loam, loam	CL	A-6, A-4,	0	0-2	90-100	85-95	70-90	55-70	25-50	8-30
	78-84	Clay loam, loam	CL, CL-ML	A-6, A-4	0	0-2	95-100	90-95	75-90	55-70	19-40	4-20
Blocher---------	0-3	Silt loam------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	80-90	25-40	3-15
	3-13	Silt loam, loam, silty clay loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	80-100	65-90	24-48	5-27
	13-47	Clay loam, clay	CL, CH	A-7-6, A-6	0	0	90-100	85-95	75-95	60-75	30-53	11-33
	47-64	Clay loam, clay	CL	A-6, A-7-6	0	0-2	95-100	90-95	75-95	60-75	25-50	11-30
	64-80	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0-2	95-100	90-95	75-90	55-70	19-40	4-20
CleC5:												
Cincinnati------	0-18	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-95	24-39	6-18
	18-42	Silt loam, loam, clay loam.	CL, CL-ML	A-6, A-4	0	0	100	95-100	80-95	60-85	25-39	6-18
	42-80	Clay loam, loam	CL	A-6, A-7-6 A-4	0	0	95-100	90-100	80-100	60-80	25-50	8-30
Blocher---------	0-9	Silt loam------	CL, ML	A-4, A-6	0	0	100	100	90-100	80-90	24-40	5-15
	9-22	Clay loam, loam	CL	A-6, A-7-6	0	0	100	95-100	80-100	60-80	24-43	8-27
	22-57	Clay, clay loam	CL, CH	A-7-6, A-6	0	0	90-100	85-95	75-95	60-75	30-53	11-33
	57-77	Clay loam, loam	CL	A-6, A-7-6	0	0-2	95-100	90-95	75-95	60-75	25-50	11-30
	77-80	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0-2	95-100	90-95	75-90	55-70	19-40	4-20
ClfA:												
Cobbsfork-------	0-12	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	23-40	3-15
	12-27	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	23-40	3-16
	27-38	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	90-100	80-90	25-45	5-20
	38-50	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	95-100	90-100	80-90	25-45	5-20
	50-85	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	95-100	90-100	75-90	25-40	5-20
	85-90	Clay loam------	CL	A-6, A-7-6	0	0	90-100	85-95	70-90	55-70	28-50	10-30
ComC:												
Coolville-------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	70-90	24-40	3-15
	8-21	Silty clay loam	CL, ML	A-7, A-6	0	0	95-100	85-100	80-100	75-95	35-50	15-25
	21-37	Clay, silty clay, silty clay loam.	CH, MH, CL	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	37-44	Silty clay, silty clay loam.	CH, MH, CL	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	44-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
ComC3:												
Coolville-------	0-4	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	70-90	24-40	3-15
	4-17	Silty clay loam	CL, ML	A-7, A-6	0	0	95-100	85-100	80-100	75-95	35-50	15-25
	17-38	Clay, silty clay, silty clay loam.	CH, MH, CL	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	38-43	Silty clay, silty clay loam.	CH, MH, CL	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	43-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
ConD:												
Coolville-------	0-5	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	70-90	24-40	3-15
	5-18	Silty clay loam	CL, ML	A-7, A-6	0	0	95-100	85-100	80-100	75-95	35-50	15-25
	18-39	Clay, silty clay, silty clay loam.	CH, MH, CL	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	39-45	Silty clay, silty clay loam.	CH, MH, CL	A-7	0	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	45-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Rarden----------	0-4	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	85-100	30-50	12-30
	4-36	Silty clay, clay, silty clay loam.	CH, MH	A-7	0-2	0-10	85-100	80-100	75-100	70-100	50-70	25-40
	36-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
CwaAQ:												
Cuba------------	0-10	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	80-98	20-38	4-15
	10-47	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	80-98	22-38	5-15
	47-60	Silt loam, loam, loamy sand.	SM, ML, CL, SC	A-4, A-6, A-2-4, A-2	0	0	90-100	80-100	50-100	25-98	15-38	2-15
DbrG:												
Deam------------	0-3	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	90-100	32-42	12-20
	3-24	Silty clay loam, silty clay.	CL, CH	A-7	0	0	90-100	90-100	90-100	85-100	40-52	17-28
	24-36	Silty clay, silty clay loam.	CL, CH	A-7, A-6	0	0	90-100	90-100	90-100	85-100	38-52	15-28
	36-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
DddB2:												
Deputy----------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	8-27	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	5-25
	27-53	Silty clay, clay.	CL, CH	A-7-6	0	0	90-100	85-100	80-100	75-95	40-60	15-30
	53-77	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	77-87	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
DddC2:												
Deputy----------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	8-27	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	5-25
	27-53	Silty clay, clay.	CL, CH	A-7-6	0	0	90-100	85-100	80-100	75-95	40-60	15-30
	53-77	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	77-87	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
DddC3:												
Deputy----------	0-2	Silt loam------	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	2-20	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	5-25
	20-43	Silty clay, clay.	CL, CH	A-7-6	0	0	90-100	85-100	80-100	75-95	40-60	15-30
	43-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	60-70	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
DfnA:												
Dubois----------	0-10	Silt loam------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	75-95	22-40	NP-17
	10-17	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-95	23-40	2-15
	17-38	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	90-100	85-100	24-50	4-30
	38-82	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-40	7-25
	82-96	Silt loam, silty clay loam, sandy loam.	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7-6	0	0	98-100	95-100	60-100	30-95	20-50	6-25
DfnB2:												
Dubois----------	0-6	Silt loam------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	75-95	22-40	NP-17
	6-10	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-95	23-40	2-15
	10-28	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	90-100	85-100	24-50	4-30
	28-68	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-40	7-25
	68-80	Silt loam, silty clay loam, sandy loam.	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7-6	0	0	98-100	95-100	60-100	30-95	20-50	6-25

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
DfoA:												
Dubois----------	0-10	Silt loam------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	75-95	22-40	NP-17
	10-17	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-95	23-40	2-15
	17-38	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	90-100	85-100	24-50	4-30
	38-82	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-40	7-25
	82-96	Silt loam, silty clay loam, sandy loam.	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7-6	0	0	98-100	95-100	60-100	30-95	20-50	6-25
Urban land.												
EepA:												
Elkinsville-----	0-10	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-95	25-40	3-15
	10-43	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	75-95	25-50	5-28
	43-53	Loam, clay loam, sandy clay loam.	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	70-100	35-80	24-38	7-14
	53-66	Loam, sandy loam, clay loam.	CL, CL-ML, SC, SC-SM	A-4, A-6, A-2-4, A-2-6	0	0	95-100	90-100	55-100	25-80	22-35	5-12
	66-80	Loam, fine sandy loam, sandy loam.	CL, CL-ML, SC, SC-SM	A-4, A-2-4	0	0	85-100	80-100	50-95	25-75	20-30	4-10
EepB:												
Elkinsville-----	0-12	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-95	25-40	3-15
	12-48	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	75-95	25-50	5-28
	48-55	Loam, clay loam, sandy clay loam.	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	70-100	35-80	24-38	7-14
	55-60	Loam, sandy loam, clay loam.	CL, CL-ML, SC, SC-SM	A-4, A-6, A-2-4, A-2-6	0	0	95-100	90-100	55-100	25-80	22-35	5-12
EepF:												
Elkinsville-----	0-6	Silt loam------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-95	25-40	3-15
	6-61	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	75-95	25-50	5-28
	61-75	Loam, sandy loam, clay loam.	CL, CL-ML, SC, SC-SM	A-4, A-6, A-2-4, A-2-6	0	0	95-100	90-100	55-100	25-80	22-35	5-12
	75-80	Loam, fine sandy loam, sandy loam.	CL, CL-ML, SC, SC-SM	A-4, A-2-4	0	0	85-100	80-100	50-95	25-75	20-30	4-10

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GgfD:												
Gilwood---------	0-6	Silt loam------	ML, CL-ML, CL	A-4	0	0-5	90-100	85-100	80-100	70-100	18-25	3-8
	6-11	Silt loam, channery silt loam.	CL-ML, CL	A-4	0	0-5	80-100	75-95	70-95	60-95	22-28	5-9
	11-22	Channery silt loam.	CL-ML, CL, GM-GC, GC	A-4, A-6	0-5	0-10	60-80	55-75	50-75	40-75	24-32	6-12
	22-32	Very channery silt loam, extremely channery silt loam.	GM, GC, ML, CL	A-2-4, A-1-B, A-4	0-10	10-40	35-70	30-60	25-60	15-60	18-30	3-10
	32-42	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Wrays-----------	0-6	Silt loam------	CL-ML, ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	23-35	3-12
	6-25	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-50	12-30
	25-34	Silt loam, channery silty clay loam.	CL, GC	A-4, A-6, A-7-6	0	0-10	65-100	60-95	55-95	45-90	30-44	8-20
	34-44	Channery silt loam, extremely channery silty clay loam.	ML, CL, GM, GC	A-4, A-6, A-2-4, A-2-6	0-5	10-45	35-85	30-80	25-80	15-75	18-38	3-14
	44-54	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
GmaG:												
Gnawbone--------	0-7	Silt loam------	ML, CL-ML, CL	A-4	0	0	95-100	95-100	95-100	85-95	16-25	2-8
	7-27	Silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	85-100	80-100	80-100	70-95	30-44	8-20
	27-40	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	0-5	85-100	80-100	80-100	70-95	20-42	7-18
	40-50	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Kurtz-----------	0-6	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	85-100	75-100	20-35	3-12
	6-36	Silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0-3	90-100	90-99	85-99	75-99	30-50	8-25
	36-47	Silty clay loam, silt loam.	CL	A-4, A-6, A-7	0-1	0-3	90-100	90-99	85-99	75-99	30-46	8-23
	47-57	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
HccA:												
Haubstadt-------	0-10	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-100	22-40	2-16
	10-32	Silt loam, silty clay loam.	CL, ML, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	23-45	2-19
	32-76	Loam, silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	95-100	90-100	80-100	60-95	25-45	9-19
	76-80	Clay loam, loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0	90-100	80-100	65-100	45-95	20-40	4-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
HccB2:												
Haubstadt-------	0-7	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-100	22-40	2-16
	7-32	Silt loam, silty clay loam.	CL, ML, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	23-45	2-19
	32-61	Loam, silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	95-100	90-100	80-100	60-95	25-45	9-19
	61-80	Clay loam, loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0	90-100	80-100	65-100	45-95	20-40	4-20
HcdC2:												
Haubstadt-------	0-5	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-100	22-40	2-16
	5-29	Silt loam, silty clay loam.	CL, ML, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	23-45	2-19
	29-58	Loam, silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	95-100	90-100	80-100	60-95	25-45	9-19
	58-80	Clay loam, loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0	90-100	80-100	65-100	45-95	20-40	4-20
Shircliff-------	0-7	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	7-13	Silty clay loam, silt loam.	CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	26-50	8-30
	13-38	Silty clay, silty clay loam.	CL, CH	A-7-6	0	0	100	100	95-100	90-100	45-65	20-40
	38-60	Silty clay, silty clay loam, silt loam.	CL-ML, CL, CH	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	16-55	5-30
HceC3:												
Haubstadt-------	0-6	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-100	22-40	2-16
	6-17	Silt loam, silty clay loam.	CL, ML, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	23-45	2-19
	17-47	Loam, silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	95-100	90-100	80-100	60-95	25-45	9-19
	47-80	Clay loam, loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0	90-100	80-100	65-100	45-95	20-40	4-20
Shircliff-------	0-6	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-50	10-30
	6-13	Silty clay loam, silt loam.	CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	26-50	8-30
	13-39	Silty clay, silty clay loam.	CL, CH	A-7-6	0	0	100	100	95-100	90-100	45-65	20-40
	39-60	Silty clay, silty clay loam, silt loam.	CL-ML, CL, CH	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	16-55	5-30

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
HcfB:												
Haubstadt-------	0-7	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	90-100	80-100	22-40	2-16
	7-32	Silt loam, silty clay loam.	CL, ML, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	23-45	2-19
	32-61	Loam, silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	95-100	90-100	80-100	60-95	25-45	9-19
	61-80	Clay loam, loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4	0	0	90-100	80-100	65-100	45-95	20-40	4-20
Urban land.												
HcgAH:												
Haymond---------	0-10	Silt loam------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	10-44	Silt loam------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	44-60	Fine sandy loam, silt loam, loam.	SM, ML, CL, SC	A-4, A-6	0	0	95-100	90-100	65-100	35-90	15-35	2-15
HcgAQ:												
Haymond---------	0-11	Silt loam------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	11-50	Silt loam------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	50-60	Fine sandy loam, silt loam, loam.	SM, ML, CL, SC	A-4, A-6	0	0	95-100	90-100	65-100	35-90	15-35	2-15
HcgAW:												
Haymond---------	0-9	Silt loam------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	9-44	Silt loam------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	44-60	Fine sandy loam, silt loam, loam.	SM, ML, CL, SC	A-4, A-6	0	0	95-100	90-100	65-100	35-90	15-35	2-15
HeeG:												
Hickory---------	0-6	Loam-----------	CL, ML, CL-ML	A-6, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	6-38	Clay loam, loam	CL	A-6, A-7	0-1	0-5	90-100	85-100	70-95	50-80	24-50	8-30
	38-44	Loam, clay loam	CL-ML, CL, SC-SM, SC	A-4, A-6	0-1	0-5	90-100	80-95	70-95	45-75	20-40	5-20
	44-60	Loam, sandy loam, clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4, A-2	0-1	0-5	90-100	80-95	50-95	30-75	20-40	5-20
HerE:												
Hickory---------	0-11	Loam-----------	CL, ML, CL-ML	A-6, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	11-39	Clay loam, loam	CL	A-6, A-7	0-1	0-5	90-100	85-100	70-95	50-80	24-50	8-30
	39-45	Loam, clay loam	CL-ML, CL, SC-SM, SC	A-4, A-6	0-1	0-5	90-100	80-95	70-95	45-75	20-40	5-20
	45-60	Loam, sandy loam, clay loam.	CL-ML, CL, SC-SM, SC	A-6, A-4, A-2	0-1	0-5	90-100	80-95	50-95	30-75	20-40	5-20
Bonnell---------	0-6	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	85-100	65-90	24-34	3-12
	6-9	Silt loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	98-100	95-100	85-100	60-90	25-50	7-28
	9-44	Clay, clay loam	CH, CL	A-7	0	0-1	95-100	90-95	80-95	65-90	30-54	20-33
	44-70	Clay loam, loam	CL	A-6, A-7-6	0	0-1	95-100	90-95	75-95	55-75	35-45	15-25
	70-80	Loam, clay loam	CL, CL-ML	A-4, A-6, A-7-6	0	0-1	90-100	85-95	70-95	50-65	20-43	4-20

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
HleAW:												
Holton----------	0-14	Silt loam------	ML, CL-ML, CL	A-4	0	0	100	100	85-100	60-90	14-28	2-10
	14-41	Silt loam, loam, sandy loam.	ML, CL, SM, SC	A-4, A-2-4	0	0	90-100	85-100	50-100	30-90	14-28	2-10
	41-60	Loam, fine sandy loam, loamy sand.	ML, CL, SM, SC	A-4, A-6, A-2-4, A-2-6	0	0-5	80-100	75-100	45-95	20-75	14-36	2-15
JaeB2:												
Jennings--------	0-9	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	23-40	3-15
	9-27	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-50	5-28
	27-38	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	95-100	80-95	60-85	25-40	5-20
	38-73	Clay loam, silty clay loam.	CL	A-6, A-7-6	0	0	90-100	85-98	75-95	60-85	30-50	12-30
	73-77	Silty clay loam, silty clay.	CL	A-6, A-7-6	0	0	100	98-100	95-100	85-100	38-50	16-22
	77-87	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
JafC2:												
Jennings--------	0-9	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	23-40	3-15
	9-27	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-50	5-28
	27-38	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	95-100	80-95	60-85	25-40	5-20
	38-73	Clay loam, silty clay loam.	CL	A-6, A-7-6	0	0	90-100	85-98	75-95	60-85	30-50	12-30
	73-77	Silty clay loam, silty clay.	CL	A-6, A-7-6	0	0	100	98-100	95-100	85-100	38-50	16-22
	77-87	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Blocher, hard bedrock--------	0-9	Silt loam------	CL-ML, ML, CL	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	9-28	Silt loam, silty clay loam, loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	80-100	65-90	24-48	5-27
	28-58	Clay loam, clay	CL, CH	A-7-6, A-6	0	0	90-100	85-95	75-95	60-75	30-53	11-33
	58-75	Clay loam, clay, silty clay.	CL, CH	A-7, A-6	0	0	90-100	85-95	75-95	60-85	35-50	12-22
	75-85	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
JafC3:												
Jennings--------	0-3	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-15
	3-17	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-50	5-28
	17-30	Silt loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	95-100	80-95	60-85	25-40	5-20
	30-69	Clay loam, silty clay loam.	CL	A-6, A-7-6	0	0	90-100	85-98	75-95	60-85	30-50	12-30
	69-75	Silty clay loam, silty clay.	CL	A-6, A-7-6	0	0	100	98-100	95-100	85-100	38-50	16-22
	75-85	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Blocher, hard bedrock--------	0-3	Silt loam------	CL, ML	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	3-19	Silty clay loam, silt loam, loam.	CL, CL-ML	A-6, A-4, A-7-6	0	0	100	100	80-100	65-90	24-48	5-27
	19-48	Clay loam, clay	CL, CH	A-7-6, A-6	0	0	90-100	85-95	75-95	60-75	30-53	11-33
	48-70	Silty clay loam, clay loam, silty clay.	CL, CH	A-7, A-6	0	0	90-100	85-95	75-95	60-85	35-50	12-22
	70-80	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
MhyA:												
Medora----------	0-9	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	23-40	3-15
	9-28	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	32-50	12-30
	28-48	Silt loam, gravelly loam, clay loam.	CL-ML, CL, SC-SM, SC	A-4, A-6	0-2	0-5	80-100	75-100	65-95	45-75	18-40	4-20
	48-80	Clay loam, sandy clay, gravelly sandy clay loam.	CL, SC	A-6, A-7, A-2-6, A-2-7	0-2	0-5	80-100	75-100	60-95	25-75	30-50	11-24
MhyB2:												
Medora----------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	23-40	3-15
	8-21	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	32-50	12-30
	21-45	Silt loam, gravelly loam, clay loam.	CL-ML, CL, SC-SM, SC	A-4, A-6	0-2	0-5	80-100	75-100	65-95	45-75	18-40	4-20
	45-80	Clay loam, sandy clay, gravelly sandy clay loam.	CL, SC	A-6, A-7, A-2-6, A-2-7	0-2	0-5	80-100	75-100	60-95	25-75	30-50	11-24

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
MhyC2:												
Medora----------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	23-40	3-15
	8-21	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	32-50	12-30
	21-45	Silt loam, gravelly loam, clay loam.	CL-ML, CL, SC-SM, SC	A-4, A-6	0-2	0-5	80-100	75-100	65-95	45-75	18-40	4-20
	45-80	Clay loam, sandy clay, gravelly sandy clay loam.	CL, SC	A-6, A-7, A-2-6, A-2-7	0-2	0-5	80-100	75-100	60-95	25-75	30-50	11-24
MhyC3:												
Medora----------	0-7	Silt loam------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	25-40	4-15
	7-16	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	85-100	32-50	12-30
	16-35	Silt loam, gravelly loam, clay loam.	CL, CL-ML, SC, SC-SM	A-4, A-6	0-2	0-5	80-100	75-100	65-95	45-75	18-40	4-20
	35-80	Clay loam, sandy clay, gravelly sandy clay loam.	CL, SC	A-6, A-7, A-2-6, A-2-7	0-2	0-5	80-100	75-100	60-95	25-75	30-50	11-24
NaaA:												
Nabb------------	0-10	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	10-18	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	18-35	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	90-100	80-90	25-45	5-25
	35-76	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	98-100	95-100	90-95	70-85	25-45	5-20
	76-80	Clay loam, loam	CL	A-4, A-6, A-7-6	0-1	0-1	90-100	85-95	70-90	55-70	25-50	8-30
NaaB2:												
Nabb------------	0-7	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	7-13	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-95	23-40	3-15
	13-33	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	90-100	80-90	25-45	5-25
	33-71	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	98-100	95-100	90-95	70-85	25-45	5-20
	71-80	Clay loam, loam	CL	A-4, A-6, A-7-6	0-1	0-1	90-100	85-95	70-90	55-70	25-50	8-30
NamF:												
Negley----------	0-6	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	85-100	75-100	70-90	55-85	24-40	3-15
	6-13	Loam-----------	ML	A-4, A-6, A-7	0-2	0-5	85-100	80-95	55-75	65-90	25-45	3-17
	13-80	Gravelly sandy clay loam, sandy clay loam, clay loam.	SC-SM, SC, CL, CL-ML	A-2, A-4, A-7, A-6	0-2	0-5	65-100	60-95	50-90	25-75	20-50	5-24

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
NanD3:												
Negley----------	0-3	Clay loam------	CL	A-6, A-4	0	0	80-100	75-95	70-90	60-75	25-40	7-15
	3-80	Gravelly sandy clay loam, sandy clay loam, sandy loam.	SC-SM, SC, CL, CL-ML	A-2, A-4, A-7, A-6	0-2	0-5	65-100	60-95	50-90	25-75	20-50	5-24
OfbAW:												
Oldenburg-------	0-9	Loam-----------	ML, CL-ML, CL	A-4	0	0	98-100	95-100	80-95	55-75	18-30	3-10
	9-25	Silt loam, loam, sandy loam.	ML, CL, SM, SC	A-4, A-2-4	0	0	95-100	85-100	50-90	25-70	15-30	2-10
	25-60	Loam, sandy loam, loamy sand.	ML, CL-ML, SM, SC-SM	A-4, A-2-4, A-1-B	0	0	85-100	75-100	45-90	20-65	0-24	NP-7
PcrA:												
Pekin-----------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	15-30	3-12
	8-29	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	24-38	5-18
	29-58	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	65-95	25-40	6-20
	58-80	Silt loam, silty clay loam, sandy loam.	ML, CL, SM, SC	A-4, A-2-4, A-6, A-2-6	0	0	90-100	85-100	50-100	25-95	15-38	3-18
PcrB2:												
Pekin-----------	0-6	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	15-30	3-12
	6-29	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	24-38	5-18
	29-67	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	65-95	25-40	6-20
	67-80	Silt loam, silty clay loam, sandy loam.	ML, CL, SM, SC	A-4, A-2-4, A-6, A-2-6	0	0	90-100	85-100	50-100	25-95	15-38	3-18
PcrC2:												
Pekin-----------	0-8	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	15-30	3-12
	8-28	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	24-38	5-18
	28-57	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	65-95	25-40	6-20
	57-80	Silt loam, silty clay loam, sandy loam.	ML, CL, SM, SC	A-4, A-2-4, A-6, A-2-6	0	0	90-100	85-100	50-100	25-95	15-38	3-18

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
PcrC3:												
Pekin-----------	0-6	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	15-30	3-12
	6-18	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-100	24-38	5-18
	18-42	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	65-95	25-40	6-20
	42-60	Silt loam, silty clay loam, sandy loam.	ML, CL, SM, SC	A-4, A-2-4, A-6, A-2-6	0	0	90-100	85-100	50-100	25-95	15-38	3-18
PhaA:												
Peoga-----------	0-8	Silt loam------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	22-38	3-18
	8-19	Silt loam------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	22-38	3-18
	19-36	Silt loam, silty clay loam.	CL	A-4, A-6, A-7-6	0	0	100	100	90-100	75-98	24-42	7-22
	36-76	Silt loam, silty clay loam, loam.	CL	A-4, A-6, A-7-6	0	0	98-100	95-100	80-100	55-95	24-42	7-22
	76-80	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	98-100	95-100	80-100	55-95	22-42	5-22
PlpAH:												
Piopolis--------	0-10	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	35-50	15-25
	10-31	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	35-50	15-25
	31-60	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	90-100	75-100	35-50	15-25
Pml.												
Pits, quarry												
RblC3:												
Rarden----------	0-6	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	85-100	30-50	12-30
	6-37	Silty clay, clay, silty clay loam.	CH, MH	A-7	0-2	0-10	85-100	80-100	75-100	70-100	50-70	25-40
	37-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
RblD3:												
Rarden----------	0-4	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	95-100	85-100	30-50	12-30
	4-32	Silty clay, clay, silty clay loam.	CH, MH	A-7	0-2	0-10	85-100	80-100	75-100	70-100	50-70	25-40
	32-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
RbmD5:												
Rarden----------	0-26	Silty clay-----	CL, CH, MH	A-7, A-6	0	0-2	95-100	90-100	85-100	75-95	38-56	15-25
	26-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
RptG:												
Rohan-----------	0-4	Channery silt loam.	CL, ML, GC, GM-GC	A-4, A-6	0-5	0-10	55-80	50-75	45-70	35-65	25-40	3-15
	4-16	Extremely channery silty clay loam, very channery silty clay loam.	GC, GM, GM-GC	A-2, A-6, A-7, A-1-B	0-10	0-15	25-60	25-55	20-50	15-40	25-45	3-20
	16-26	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Jessietown------	0-5	Silt loam------	ML, CL, CL-ML	A-4	0	0	95-100	95-100	85-100	70-90	25-35	5-10
	5-14	Silty clay loam, silt loam.	ML, CL, CL-ML	A-4, A-6, A-7-6	0	0-2	95-100	85-100	80-100	70-95	25-45	3-20
	14-30	Very channery silty clay loam, channery silty clay, silt loam.	ML, CL, CL-ML, GM-GC	A-4, A-6, A-7-6, A-2	0-15	0-25	40-100	35-95	30-90	25-85	25-50	5-30
	30-40	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
SceA:												
Scottsburg------	0-8	Silt loam------	CL-ML, ML, CL	A-4, A-6	0	0	100	98-100	90-95	85-90	25-40	3-15
	8-30	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	98-100	90-95	80-90	30-50	10-28
	30-47	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	95-100	90-95	85-90	75-85	30-50	12-28
	47-61	Silty clay, silty clay loam.	CL, CH, MH, ML	A-7	0	0-2	98-100	95-100	95-100	85-95	40-52	16-22
	61-63	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	63-73	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
SceB2:												
Scottsburg------	0-8	Silt loam------	CL-ML, ML, CL	A-4, A-6	0	0	100	98-100	90-95	85-90	25-40	3-15
	8-31	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	98-100	90-95	80-90	30-50	10-28
	31-53	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	95-100	90-95	85-90	75-85	30-50	12-28
	53-61	Silty clay, silty clay loam.	CL, CH, MH, ML	A-7	0	0-2	98-100	95-100	95-100	85-95	40-52	16-22
	61-67	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	67-77	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
SoaB:												
Spickert--------	0-7	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	7-31	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	5-30
	31-58	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0-2	90-100	80-98	75-98	65-95	20-36	5-15
	58-64	Silt loam, silty clay loam, very channery silt loam.	CL-ML, CL, GM-GC, GC	A-4, A-6, A-2-4, A-2-6	0-2	5-30	40-90	35-85	35-85	25-80	20-40	5-20
	64-70	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
SoaC2:												
Spickert--------	0-7	Silt loam------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	7-31	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	25-50	5-30
	31-58	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0-2	90-100	80-98	75-98	65-95	20-36	5-15
	58-64	Silt loam, silty clay loam, very channery silt loam.	CL-ML, CL, GM-GC, GC	A-4, A-6, A-2-4, A-2-6	0-2	5-30	40-90	35-85	35-85	25-80	20-40	5-20
	64-70	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
StaAH:												
Steff-----------	0-10	Silt loam------	ML, CL-ML	A-4, A-6	0	0	100	95-100	85-100	75-100	25-39	2-15
	10-31	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	75-100	25-50	3-25
	31-60	Silt loam, loam, sandy loam.	ML, CL SM, SC-SM	A-4, A-2-4, A-6	0	0	85-100	75-100	60-100	25-95	15-38	NP-15
StaAQ:												
Steff-----------	0-10	Silt loam------	ML, CL-ML	A-4, A-6	0	0	100	95-100	85-100	75-100	25-39	2-15
	10-29	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	75-100	25-50	3-25
	29-60	Silt loam, loam, sandy loam.	ML, CL SM, SC-SM	A-4, A-2-4, A-6	0	0	85-100	75-100	60-100	25-95	15-38	NP-15
StaAW:												
Steff-----------	0-11	Silt loam------	ML, CL-ML	A-4, A-6	0	0	100	95-100	85-100	75-100	25-39	2-15
	11-41	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	75-100	25-50	3-25
	41-60	Silt loam, loam, sandy loam.	ML, CL SM, SC-SM	A-4, A-2-4, A-6	0	0	85-100	75-100	60-100	25-95	15-38	NP-15

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
StdAH:												
Stendal	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-90	25-38	3-15
	8-40	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	90-100	85-98	25-50	5-25
	40-60	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	95-100	90-100	75-100	55-90	25-50	5-25
StdAQ:												
Stendal	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-90	25-38	3-15
	8-40	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	90-100	85-98	25-50	5-25
	40-60	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	95-100	90-100	75-100	55-90	25-50	5-25
StdAW:												
Stendal	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-90	25-38	3-15
	8-40	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	90-100	85-98	25-50	5-25
	40-60	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	95-100	90-100	75-100	55-90	25-50	5-25
StmB2:												
Stonehead	0-5	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	5-30	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-50	12-32
	30-46	Silty clay, clay, silty clay loam.	CL, CH	A-7	0	0-1	90-100	90-100	85-100	80-95	42-62	16-36
	46-65	Silty clay loam	CL	A-6, A-7	0	0-1	90-100	90-100	85-100	80-95	32-42	12-22
	65-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
StmC:												
Stonehead	0-5	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	23-40	3-15
	5-30	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	30-50	12-32
	30-46	Silty clay, clay, silty clay loam.	CL, CH	A-7	0	0-1	90-100	90-100	85-100	80-95	42-62	16-36
	46-65	Silty clay loam	CL	A-6, A-7	0	0-1	90-100	90-100	85-100	80-95	32-42	12-22
	65-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
ThaC2:												
Trappist	0-7	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-95	20-35	2-14
	7-24	Silty clay, silty clay loam.	CL, CH	A-7, A-6	0	0	90-100	85-100	80-100	70-95	35-52	12-24
	24-31	Very channery silty clay, channery silty clay loam.	GC, CL, CH, SC	A-2, A-7, A-6	0-2	0-5	45-80	35-75	30-75	30-70	35-50	12-22
	31-41	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ThbC3:												
Trappist--------	0-6	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	85-95	32-48	12-24
	6-21	Silty clay, silty clay loam.	CL, CH	A-7, A-6	0	0	90-100	85-100	80-100	70-95	35-52	12-24
	21-24	Very channery silty clay, channery silty clay loam.	GC, CL, CH, SC	A-2, A-7, A-6	0-2	0-5	45-80	35-75	30-75	30-70	35-50	12-22
	24-34	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
ThbD5:												
Trappist--------	0-3	Silty clay loam	CL	A-6, A-7-6	0	0	90-100	85-100	80-100	75-95	32-48	12-24
	3-20	Silty clay loam, silty clay.	CL, CH	A-6, A-7	0	0	85-100	80-100	75-100	70-95	34-52	12-24
	20-30	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	30-40	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
ThcD3:												
Trappist--------	0-4	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	85-95	32-48	12-24
	4-21	Silty clay, silty clay loam.	CL, CH	A-7, A-6	0	0	90-100	85-100	80-100	70-95	35-52	12-24
	21-27	Very channery silty clay, channery silty clay loam.	GC, CL, CH, SC	A-2, A-7, A-6	0-2	0-5	45-80	35-75	30-75	30-70	35-50	12-22
	27-37	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Rohan-----------	0-3	Channery silty clay loam.	CL, ML, GC, GM-GC	A-4, A-6	0-5	0-10	55-80	50-75	45-70	35-65	25-40	3-15
	3-12	Extremely channery silty clay loam, very channery silty clay loam.	GC, GM, GM-GC	A-2, A-6, A-7, A-1-B	0-10	0-15	25-60	25-55	20-50	15-40	25-45	3-20
	12-29	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
ThdD:												
Trappist--------	0-6	Silt loam------	ML, CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-95	20-35	2-14
	6-30	Silty clay, silty clay loam.	CL, CH	A-7, A-6	0	0	90-100	85-100	80-100	70-95	35-52	12-24
	30-35	Very channery silty clay, channery silty clay loam.	GC, CL, CH, SC	A-2, A-7, A-6	0-2	0-5	45-80	35-75	30-75	30-70	35-50	12-22
	35-45	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
ThdD:												
Rohan	0-3	Silt loam	CL, ML, CL-ML	A-4	0	0	80-100	80-90	65-90	60-90	25-35	3-10
	3-16	Extremely channery silty clay loam, very channery silty clay loam.	GC, GM, GM-GC	A-2, A-6, A-7, A-1-B	0-10	0-15	25-60	25-55	20-50	15-40	25-45	3-20
	16-19	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
	19-29	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
Uaa:												
Udorthents	---	Variable	---	---	---	---	---	---	---	---	---	---
W.												
Water												
WaaAH:												
Wakeland	0-7	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	7-29	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	29-60	Silt loam, loam	ML, CL-ML, CL	A-4	0	0	100	100	85-100	60-100	16-28	3-9
WaaAW:												
Wakeland	0-7	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	7-29	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	29-60	Silt loam, loam	ML, CL-ML, CL	A-4	0	0	100	100	85-100	60-100	16-28	3-9
WedB2:												
Weddel	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	80-95	23-40	3-15
	8-26	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	95-100	90-100	80-100	25-50	6-30
	26-39	Silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	90-100	85-95	75-95	60-90	25-45	5-25
	39-66	Silty clay loam, clay loam, clay.	CL, CH	A-7	0	0	85-100	80-95	70-95	55-90	40-60	15-30
	66-75	Silty clay, silty clay loam.	CL, CH	A-7	0	0-2	95-100	90-100	85-100	80-95	40-60	15-32
	75-80	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
WhcD:												
Wellrock	0-4	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	95-100	90-100	25-35	3-12
	4-8	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	100	95-100	95-100	25-35	3-12
	8-28	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	95-100	30-50	10-30
	28-52	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0-5	85-100	80-100	80-100	70-100	20-42	5-18
	52-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP

Table 17.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
WhcD:												
Gnawbone--------	0-7	Silt loam------	ML, CL-ML, CL	A-4	0	0	95-100	95-100	95-100	85-95	16-25	2-8
	7-35	Silt loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	85-100	80-100	80-100	70-95	30-44	8-20
	35-39	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	0-5	85-100	80-100	80-100	70-95	20-42	7-18
	39-60	Weathered bedrock.	---	---	0	0	0	0	0	0	---	NP
WnmA:												
Whitcomb--------	0-9	Silt loam------	CL-ML, ML, CL	A-4, A-6	0	0	100	100	95-100	85-95	23-40	3-15
	9-15	Silt loam------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-95	25-40	4-15
	15-30	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	0	100	100	95-100	90-95	30-50	10-28
	30-48	Silty clay loam	CL	A-6, A-7-6	0	0	100	95-100	95-100	85-95	28-50	15-28
	48-61	Silty clay, silty clay loam.	CL, CH, MH, ML	A-7	0	0	95-100	90-100	90-100	80-95	40-52	15-21
	61-71	Unweathered bedrock.	---	---	0	0	0	0	0	0	---	NP
WokAH:												
Wilbur----------	0-7	Silt loam------	CL-ML, CL, ML	A-4	0	0	100	100	95-100	70-100	20-30	3-10
	7-32	Silt loam------	CL-ML, CL, ML	A-4	0	0	100	100	95-100	80-100	20-30	3-10
	32-60	Silt loam, loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	80-100	60-100	20-35	3-15
WokAW:												
Wilbur----------	0-7	Silt loam------	CL-ML, CL, ML	A-4	0	0	100	100	95-100	70-100	20-30	3-10
	7-32	Silt loam------	CL-ML, CL, ML	A-4	0	0	100	100	95-100	80-100	20-30	3-10
	32-60	Silt loam, loam	CL-ML, CL, ML	A-4, A-6	0	0	100	100	80-100	60-100	20-35	3-15
WomAM:												
Wilhite---------	0-9	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	12-22
	9-38	Silty clay loam, silty clay.	CL, CH	A-6, A-7-6	0	0	100	100	95-100	90-100	35-60	12-32
	38-60	Silty clay loam, silty clay.	CL, CH	A-6, A-7-6	0	0	100	100	90-100	85-95	35-60	12-32
WprAW:												
Wirt------------	0-8	Loam----------	CL-ML, ML, CL	A-4	0	0	98-100	95-100	80-100	60-90	18-30	3-10
	8-36	Silt loam, loam, sandy loam.	CL, ML, SM, SC	A-4, A-2-4	0	0	95-100	80-100	50-100	25-85	15-30	2-10
	36-60	Loam, gravelly sandy loam, loamy sand.	SM, SC-SM, ML, CL-ML	A-4, A-2-4, A-1-B	0	0-2	80-100	50-100	30-95	15-75	0-24	NP-7
WpuAH:												
Wirt------------	0-8	Silt loam------	CL-ML, ML, CL	A-4	0	0	98-100	95-100	80-100	60-90	18-30	3-10
	8-38	Silt loam, loam, sandy loam.	CL, ML, SM, SC	A-4, A-2-4	0	0	95-100	80-100	50-100	25-85	15-30	2-10
	38-60	Loam, gravelly sandy loam, loamy sand.	SM, SC-SM, ML, CL-ML	A-4, A-2-4, A-1-B	0	0-2	80-100	50-100	30-95	15-75	0-24	NP-7

Table 18.--Physical Properties of the Soils

Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data was not available or was not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
AddA:												
Avonburg--------	0-11	10-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-2.0	0.55	0.55	4	5	56
	11-21	12-20	1.35-1.55	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	21-37	24-30	1.40-1.60	0.06-0.60	0.14-0.21	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	37-52	22-28	1.60-1.70	0.01-0.06	0.09-0.11	Low------	0.0-0.5	0.55	0.55	---	---	---
	52-83	20-26	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	83-90	27-40	1.50-1.70	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.37	0.43	---	---	---
AddB2:												
Avonburg--------	0-7	10-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-2.0	0.55	0.55	4	5	56
	7-16	12-20	1.35-1.55	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	16-32	24-30	1.40-1.60	0.06-0.60	0.14-0.21	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	32-42	22-28	1.60-1.70	0.01-0.06	0.09-0.11	Low------	0.0-0.5	0.55	0.55	---	---	---
	42-63	20-26	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	63-80	27-40	1.50-1.70	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.37	0.43	---	---	---
BbhA:												
Bartle----------	0-11	10-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-2.0	0.55	0.55	4	5	56
	11-17	12-20	1.40-1.60	0.60-2.00	0.20-0.24	Low------	0.0-0.5	0.55	0.55	---	---	---
	17-30	18-32	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.0-0.5	0.55	0.55	---	---	---
	30-55	18-32	1.60-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	55-80	18-32	1.50-1.70	0.06-0.60	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
BbhB:												
Bartle----------	0-6	10-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-2.0	0.55	0.55	4	5	56
	6-12	12-20	1.40-1.60	0.60-2.00	0.20-0.24	Low------	0.0-0.5	0.55	0.55	---	---	---
	12-26	18-32	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.0-0.5	0.55	0.55	---	---	---
	26-59	18-32	1.60-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	59-80	18-32	1.50-1.70	0.06-0.60	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
BcrAW:												
Beanblossom-----	0-7	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.43	0.49	4	5	56
	7-17	10-22	1.40-1.50	2.00-6.00	0.09-0.21	Low------	1.0-2.0	0.20	0.43	---	---	---
	17-54	10-24	1.40-1.50	2.00-20.00	0.04-0.14	Low------	0.5-1.0	0.10	0.32	---	---	---
	54-60	---	---	0.00-0.20	---	---	0.0-0.5	---	---	---	---	---
BdoB:												
Bedford---------	0-9	14-26	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	9-24	22-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	24-51	22-32	1.55-1.80	0.01-0.06	0.06-0.08	Moderate-	0.0-0.5	0.37	0.55	---	---	---
	51-80	45-75	1.40-1.60	0.20-2.00	0.06-0.08	High-----	0.0-0.5	0.20	0.24	---	---	---
BfbC2:												
Blocher, soft bedrock--------	0-8	14-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	3	5	56
	8-20	20-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.43	0.43	---	---	---
	20-61	35-55	1.50-1.60	0.06-0.20	0.10-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	61-80	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Weddel----------	0-8	12-20	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	8-30	24-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	30-50	22-30	1.60-1.70	0.06-0.20	0.08-0.10	Low------	0.0-0.5	0.43	0.55	---	---	---
	50-62	34-45	1.50-1.70	0.06-0.20	0.08-0.10	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	62-67	35-50	1.40-1.60	0.01-0.06	0.05-0.10	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	67-80	---	---	0.00-0.06	---	---	---	---	---	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
BfcC3:												
Blocher, soft bedrock--------	0-6	27-34	1.30-1.60	0.60-2.00	0.14-0.21	Moderate-	0.5-2.0	0.43	0.43	2	7	38
	6-11	27-34	1.40-1.60	0.60-2.00	0.12-0.16	Moderate-	0.0-0.5	0.32	0.32	---	---	---
	11-62	35-55	1.50-1.60	0.06-0.20	0.10-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	62-80	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Weddel----------	0-6	18-24	1.40-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	6-17	24-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	17-38	22-30	1.60-1.70	0.06-0.20	0.08-0.10	Low------	0.0-0.5	0.43	0.55	---	---	---
	38-55	34-45	1.50-1.70	0.06-0.20	0.08-0.10	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	55-61	35-50	1.40-1.60	0.01-0.06	0.05-0.10	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	61-80	---	---	0.00-0.06	---	---	---	---	---	---	---	---
BnyD3:												
Bonnell---------	0-3	27-34	1.40-1.60	0.60-2.00	0.12-0.18	Moderate-	0.5-2.0	0.28	0.28	4	6	48
	3-32	35-48	1.50-1.70	0.20-2.00	0.11-0.15	High-----	0.0-1.0	0.17	0.20	---	---	---
	32-54	24-34	1.50-1.60	0.20-0.60	0.12-0.16	Moderate-	0.0-0.5	0.24	0.28	---	---	---
	54-80	18-34	1.60-1.80	0.06-0.60	0.04-0.12	Moderate-	0.0-0.5	0.24	0.28	---	---	---
BobE5:												
Bonnell---------	0-3	27-34	1.40-1.60	0.60-2.00	0.12-0.18	Moderate-	0.5-1.0	0.28	0.28	4	6	48
	3-25	35-48	1.50-1.70	0.20-2.00	0.11-0.15	High-----	0.0-1.0	0.17	0.20	---	---	---
	25-38	24-34	1.50-1.60	0.20-0.60	0.12-0.16	Moderate-	0.0-0.5	0.24	0.28	---	---	---
	38-60	18-32	1.60-1.80	0.06-0.60	0.04-0.12	Moderate-	0.0-0.5	0.24	0.28	---	---	---
Hickory---------	0-4	27-34	1.40-1.60	0.60-2.00	0.12-0.18	Moderate-	0.0-1.0	0.28	0.28	4	6	48
	4-40	24-34	1.50-1.60	0.60-2.00	0.12-0.16	Moderate-	0.0-0.5	0.24	0.28	---	---	---
	40-60	18-27	1.60-1.75	0.60-2.00	0.08-0.15	Low------	0.0-0.5	0.28	0.32	---	---	---
BodAH:												
Bonnie----------	0-20	18-27	1.30-1.50	0.60-2.00	0.22-0.25	Low------	1.0-3.0	0.43	0.43	5	6	48
	20-47	18-27	1.35-1.55	0.20-0.60	0.21-0.24	Low------	0.0-1.0	0.43	0.43	---	---	---
	47-60	18-30	1.35-1.55	0.20-0.60	0.14-0.24	Low------	0.0-1.0	0.43	0.43	---	---	---
BodAW:												
Bonnie----------	0-8	18-27	1.30-1.50	0.60-2.00	0.22-0.25	Low------	1.0-3.0	0.43	0.43	5	6	48
	8-38	18-27	1.35-1.55	0.20-0.60	0.21-0.24	Low------	0.0-1.0	0.43	0.43	---	---	---
	38-60	18-30	1.35-1.55	0.20-0.60	0.14-0.24	Low------	0.0-1.0	0.43	0.43	---	---	---
BvoG:												
Brownstown------	0-6	6-18	1.30-1.40	0.06-2.00	0.15-0.24	Low------	1.0-4.0	0.32	0.43	2	5	56
	6-18	8-18	1.30-1.50	2.00-6.00	0.05-0.19	Low------	0.5-1.0	0.32	0.64	---	---	---
	18-36	8-18	1.30-1.50	2.00-6.00	0.03-0.10	Low------	0.0-0.5	0.10	0.64	---	---	---
	36-46	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Gilwood---------	0-6	12-20	1.30-1.40	0.60-2.00	0.16-0.24	Low------	2.0-4.0	0.32	0.43	2	5	56
	6-11	16-22	1.30-1.40	0.60-2.00	0.15-0.23	Low------	0.5-1.0	0.37	0.55	---	---	---
	11-22	18-27	1.30-1.50	0.60-2.00	0.12-0.20	Low------	0.0-0.5	0.28	0.55	---	---	---
	22-32	12-24	1.30-1.50	0.60-2.00	0.06-0.16	Low------	0.0-0.5	0.10	0.55	---	---	---
	32-42	---	---	0.00-0.20	---	---	---	---	---	---	---	---
CkkB2:												
Cincinnati------	0-8	14-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	6	48
	8-31	22-30	1.45-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	31-72	20-30	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	72-80	25-40	1.55-1.75	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---
CldC2:												
Cincinnati------	0-8	14-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	6	48
	8-24	22-30	1.45-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	24-74	20-30	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	74-80	25-40	1.55-1.75	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
CldC2:												
Blocher---------	0-7	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	3	5	56
	7-17	20-30	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.5-1.0	0.49	0.49	---	---	---
	17-44	35-45	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	44-76	30-40	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	76-80	16-28	1.50-1.70	0.06-0.60	0.08-0.13	Low------	0.0-0.5	0.37	0.43	---	---	---
CldC3:												
Cincinnati------	0-5	18-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	5-14	22-30	1.45-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	14-35	20-30	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	35-78	25-40	1.55-1.75	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	78-84	25-40	1.55-1.75	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---
Blocher---------	0-3	16-26	1.30-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	3-13	20-30	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.5-1.0	0.49	0.49	---	---	---
	13-47	35-45	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	47-64	30-40	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	64-80	16-28	1.50-1.70	0.06-0.60	0.08-0.13	Low------	0.0-0.5	0.37	0.43	---	---	---
CleC5:												
Cincinnati------	0-18	20-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.49	0.49	2	6	48
	18-42	18-30	1.60-1.80	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.43	0.49	---	---	---
	42-80	27-40	1.50-1.70	0.06-0.60	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---
Blocher---------	0-9	18-26	1.40-1.60	0.60-2.00	0.16-0.20	Low------	0.0-1.0	0.49	0.49	2	6	48
	9-22	22-34	1.40-1.50	0.60-2.00	0.12-0.16	Moderate-	0.0-0.5	0.32	0.32	---	---	---
	22-57	35-45	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	57-77	24-34	1.50-1.70	0.06-0.20	0.12-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	77-80	16-28	1.50-1.70	0.06-0.60	0.08-0.13	Low------	0.0-0.5	0.37	0.43	---	---	---
ClfA:												
Cobbsfork-------	0-12	10-15	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	12-27	10-26	1.35-1.55	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	27-38	20-30	1.40-1.60	0.20-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	38-50	20-28	1.60-1.80	0.01-0.06	0.08-0.15	Low------	0.0-0.5	0.49	0.49	---	---	---
	50-85	20-26	1.60-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	85-90	27-38	1.50-1.70	0.06-0.20	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---
ComC:												
Coolville-------	0-8	17-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-4.0	0.49	0.49	4	6	48
	8-21	30-40	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.43	0.49	---	---	---
	21-37	35-60	1.40-1.65	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	37-44	35-60	1.40-1.65	0.01-0.20	0.08-0.12	Moderate-	0.0-0.5	0.32	0.43	---	---	---
	44-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
ComC3:												
Coolville-------	0-4	17-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	3	6	48
	4-17	30-40	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.43	0.49	---	---	---
	17-38	35-60	1.40-1.65	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	38-43	35-60	1.40-1.65	0.01-0.20	0.08-0.12	Moderate-	0.0-0.5	0.32	0.43	---	---	---
	43-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
ConD:												
Coolville-------	0-5	17-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-4.0	0.49	0.49	4	6	48
	5-18	30-40	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.43	0.49	---	---	---
	18-39	35-60	1.40-1.65	0.06-0.20	0.10-0.15	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	39-45	35-60	1.40-1.65	0.01-0.20	0.08-0.12	Moderate-	0.0-0.5	0.32	0.43	---	---	---
	45-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Rarden----------	0-4	27-38	1.35-1.55	0.20-0.60	0.20-0.23	Moderate-	1.0-4.0	0.43	0.43	3	7	38
	4-36	35-60	1.40-1.60	0.06-0.20	0.10-0.14	Moderate-	0.0-1.0	0.24	0.28	---	---	---
	36-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
CwaAQ:												
Cuba------------	0-10	12-24	1.30-1.55	0.60-2.00	0.22-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	10-47	18-26	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.5-1.0	0.49	0.49	---	---	---
	47-60	8-26	1.35-1.60	0.60-6.00	0.10-0.22	Low------	0.0-0.5	0.43	0.55	---	---	---
DbrG:												
Deam------------	0-3	27-34	1.30-1.40	0.60-2.00	0.21-0.23	Moderate-	2.0-4.0	0.43	0.43	3	7	38
	3-24	38-45	1.40-1.60	0.20-0.60	0.11-0.16	Moderate-	0.5-1.0	0.43	0.43	---	---	---
	24-36	35-45	1.50-1.70	0.01-0.20	0.04-0.09	Moderate-	0.0-0.5	0.37	0.37	---	---	---
	36-60	---	1.70-1.80	0.00-0.06	---	---	0.0-0.5	---	---	---	---	---
DddB2:												
Deputy----------	0-8	12-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	4	5	56
	8-27	24-35	1.35-1.55	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.49	0.49	---	---	---
	27-53	40-50	1.40-1.60	0.06-0.20	0.08-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	53-77	---	---	0.00-0.20	---	---	---	---	---	---	---	---
	77-87	---	---	0.00-0.60	---	---	---	---	---	---	---	---
DddC2:												
Deputy----------	0-8	12-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	4	5	56
	8-27	24-35	1.35-1.55	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.49	0.49	---	---	---
	27-53	40-50	1.40-1.60	0.06-0.20	0.08-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	53-77	---	---	0.00-0.20	---	---	---	---	---	---	---	---
	77-87	---	---	0.00-0.60	---	---	---	---	---	---	---	---
DddC3:												
Deputy----------	0-2	18-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	0.5-1.0	0.49	0.49	3	6	48
	2-20	24-35	1.35-1.55	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.49	0.49	---	---	---
	20-43	40-50	1.40-1.60	0.06-0.20	0.08-0.16	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	43-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
	60-70	---	---	0.00-0.60	---	---	---	---	---	---	---	---
DfnA:												
Dubois----------	0-10	10-20	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	10-17	15-20	1.35-1.60	0.60-2.00	0.20-0.27	Low------	0.0-1.0	0.55	0.55	---	---	---
	17-38	25-34	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	38-82	15-32	1.65-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	82-96	15-40	1.50-1.70	0.01-0.06	0.06-0.08	Moderate-	0.0-0.5	0.43	0.43	---	---	---
DfnB2:												
Dubois----------	0-6	10-20	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	6-10	15-20	1.35-1.60	0.60-2.00	0.20-0.27	Low------	0.0-1.0	0.55	0.55	---	---	---
	10-28	25-34	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	28-68	15-32	1.65-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	68-80	15-40	1.50-1.70	0.01-0.06	0.06-0.08	Moderate-	0.0-0.5	0.43	0.43	---	---	---
DfoA:												
Dubois----------	0-10	10-20	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	10-17	15-20	1.35-1.60	0.60-2.00	0.20-0.27	Low------	0.0-1.0	0.55	0.55	---	---	---
	17-38	25-34	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	38-82	15-32	1.65-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	82-96	15-40	1.50-1.70	0.01-0.06	0.06-0.08	Moderate-	0.0-0.5	0.43	0.43	---	---	---
Urban land.												
EepA:												
Elkinsville-----	0-10	8-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	10-43	18-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.43	0.43	---	---	---
	43-53	20-30	1.40-1.60	0.60-2.00	0.15-0.19	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	53-66	16-28	1.40-1.60	0.60-2.00	0.12-0.19	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	66-80	14-26	1.40-1.60	0.60-2.00	0.12-0.19	Low------	0.0-0.5	0.24	0.32	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
EepB:												
Elkinsville-----	0-12	8-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	12-48	18-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.43	0.43	---	---	---
	48-55	20-30	1.40-1.60	0.60-2.00	0.15-0.19	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	55-60	16-28	1.40-1.60	0.60-2.00	0.12-0.19	Moderate-	0.0-0.5	0.28	0.32	---	---	---
EepF:												
Elkinsville-----	0-6	8-18	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-4.0	0.43	0.43	5	5	56
	6-61	18-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.43	0.43	---	---	---
	61-75	16-28	1.40-1.60	0.60-2.00	0.12-0.19	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	75-80	14-26	1.40-1.60	0.60-2.00	0.12-0.19	Low------	0.0-0.5	0.24	0.32	---	---	---
GgfD:												
Gilwood---------	0-6	12-20	1.30-1.40	0.60-2.00	0.16-0.24	Low------	2.0-4.0	0.32	0.43	2	5	56
	6-11	16-22	1.30-1.40	0.60-2.00	0.15-0.23	Low------	0.5-1.0	0.37	0.55	---	---	---
	11-22	18-27	1.30-1.50	0.60-2.00	0.12-0.20	Low------	0.0-0.5	0.28	0.55	---	---	---
	22-32	12-24	1.30-1.50	0.60-2.00	0.06-0.16	Low------	0.0-0.5	0.10	0.55	---	---	---
	32-42	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Wrays-----------	0-6	10-22	1.30-1.50	0.60-2.00	0.18-0.24	Low------	2.0-4.0	0.43	0.43	3	5	56
	6-25	22-34	1.40-1.60	0.60-2.00	0.14-0.24	Moderate-	0.5-1.0	0.49	0.49	---	---	---
	25-34	24-34	1.40-1.60	0.60-2.00	0.13-0.20	Moderate-	0.0-1.0	0.37	0.49	---	---	---
	34-44	12-30	1.40-1.60	0.20-0.60	0.06-0.17	Low------	0.0-0.5	0.17	0.55	---	---	---
	44-54	---	---	0.00-0.20	---	---	---	---	---	---	---	---
GmaG:												
Gnawbone--------	0-7	10-20	1.30-1.40	0.60-2.00	0.16-0.24	Low------	2.0-4.0	0.37	0.43	3	5	56
	7-27	24-34	1.40-1.60	0.60-2.00	0.11-0.20	Low------	0.0-1.0	0.43	0.49	---	---	---
	27-40	15-32	1.40-1.60	0.60-2.00	0.07-0.16	Low------	0.0-0.5	0.49	0.55	---	---	---
	40-50	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Kurtz-----------	0-6	12-22	1.35-1.50	0.60-2.00	0.18-0.24	Low------	2.0-4.0	0.37	0.43	4	5	56
	6-36	25-35	1.35-1.55	0.60-2.00	0.10-0.22	Moderate-	0.0-1.0	0.43	0.49	---	---	---
	36-47	25-32	1.50-1.65	0.60-2.00	0.05-0.14	Moderate-	0.0-0.5	0.43	0.49	---	---	---
	47-57	---	---	0.00-0.06	---	---	---	---	---	---	---	---
HccA:												
Haubstadt-------	0-10	14-24	1.25-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	6	48
	10-32	18-34	1.30-1.70	0.60-2.00	0.14-0.24	Moderate-	0.5-1.0	0.55	0.55	---	---	---
	32-76	22-32	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.43	0.49	---	---	---
	76-80	18-35	1.55-1.65	0.60-2.00	0.06-0.08	Moderate-	0.0-0.5	0.43	0.64	---	---	---
HccB2:												
Haubstadt-------	0-7	14-24	1.25-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	6	48
	7-32	18-34	1.30-1.70	0.60-2.00	0.14-0.24	Moderate-	0.5-1.0	0.55	0.55	---	---	---
	32-61	22-32	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.43	0.49	---	---	---
	61-80	18-35	1.55-1.65	0.60-2.00	0.06-0.08	Moderate-	0.0-0.5	0.43	0.64	---	---	---
HcdC2:												
Haubstadt-------	0-5	14-24	1.25-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	6	48
	5-29	18-34	1.30-1.70	0.60-2.00	0.14-0.24	Moderate-	0.5-1.0	0.55	0.55	---	---	---
	29-58	22-32	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.43	0.49	---	---	---
	58-80	18-35	1.55-1.65	0.60-2.00	0.06-0.08	Moderate-	0.0-0.5	0.43	0.64	---	---	---
Shircliff-------	0-7	20-27	1.30-1.55	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	4	6	48
	7-13	24-36	1.40-1.60	0.60-2.00	0.16-0.22	Moderate-	0.5-1.0	0.43	0.43	---	---	---
	13-38	35-60	1.55-1.65	0.06-0.60	0.12-0.18	High-----	0.0-1.0	0.32	0.32	---	---	---
	38-60	24-50	1.50-1.65	0.06-0.20	0.12-0.22	Moderate-	0.0-0.5	0.43	0.43	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
HceC3:												
Haubstadt-------	0-6	18-27	1.25-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	6-17	18-34	1.30-1.70	0.60-2.00	0.14-0.24	Moderate-	0.5-1.0	0.55	0.55	---	---	---
	17-47	22-32	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.43	0.49	---	---	---
	47-80	18-35	1.55-1.65	0.60-2.00	0.06-0.08	Moderate-	0.0-0.5	0.43	0.64	---	---	---
Shircliff-------	0-6	27-35	1.40-1.60	0.60-2.00	0.16-0.21	Moderate-	0.5-2.0	0.49	0.49	3	7	38
	6-13	24-36	1.40-1.60	0.60-2.00	0.16-0.22	Moderate-	0.5-1.0	0.43	0.43	---	---	---
	13-39	35-60	1.55-1.65	0.06-0.60	0.12-0.18	High-----	0.0-1.0	0.32	0.32	---	---	---
	39-60	24-50	1.50-1.65	0.06-0.20	0.12-0.22	Moderate-	0.0-0.5	0.43	0.43	---	---	---
HcfB:												
Haubstadt-------	0-7	14-24	1.25-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	6	48
	7-32	18-34	1.30-1.70	0.60-2.00	0.14-0.24	Moderate-	0.5-1.0	0.55	0.55	---	---	---
	32-61	22-32	1.60-1.85	0.06-0.20	0.06-0.08	Low------	0.0-0.5	0.43	0.49	---	---	---
	61-80	18-35	1.55-1.65	0.60-2.00	0.06-0.08	Moderate-	0.0-0.5	0.43	0.64	---	---	---
Urban land.												
HcgAH:												
Haymond---------	0-10	10-20	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	10-44	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.5-2.0	0.55	0.55	---	---	---
	44-60	5-26	1.30-1.50	0.60-2.00	0.14-0.22	Low------	0.0-1.0	0.43	0.49	---	---	---
HcgAQ:												
Haymond---------	0-11	10-20	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	11-50	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.5-2.0	0.55	0.55	---	---	---
	50-60	5-26	1.30-1.50	0.60-2.00	0.14-0.22	Low------	0.0-1.0	0.43	0.49	---	---	---
HcgAW:												
Haymond---------	0-9	10-20	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	9-44	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.5-2.0	0.55	0.55	---	---	---
	44-60	5-26	1.30-1.50	0.60-2.00	0.14-0.22	Low------	0.0-1.0	0.43	0.49	---	---	---
HeeG:												
Hickory---------	0-6	19-25	1.30-1.50	0.60-2.00	0.20-0.22	Low------	2.0-4.0	0.32	0.32	5	6	48
	6-38	24-35	1.45-1.65	0.60-2.00	0.15-0.19	Moderate-	0.0-0.5	0.24	0.28	---	---	---
	38-44	15-32	1.50-1.70	0.60-2.00	0.11-0.19	Low------	0.0-0.5	0.24	0.28	---	---	---
	44-60	15-30	1.50-1.75	0.60-2.00	0.10-0.15	Low------	0.0-0.5	0.28	0.32	---	---	---
HerE:												
Hickory---------	0-11	19-25	1.30-1.50	0.60-2.00	0.20-0.22	Low------	2.0-4.0	0.32	0.32	5	6	48
	11-39	24-35	1.45-1.65	0.60-2.00	0.15-0.19	Moderate-	0.0-0.5	0.24	0.28	---	---	---
	39-45	15-32	1.50-1.70	0.60-2.00	0.11-0.19	Low------	0.0-0.5	0.24	0.28	---	---	---
	45-60	15-30	1.50-1.75	0.60-2.00	0.10-0.15	Low------	0.0-0.5	0.28	0.32	---	---	---
Bonnell---------	0-6	10-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	2.0-4.0	0.43	0.43	5	5	56
	6-9	20-32	1.40-1.60	0.60-2.00	0.18-0.21	Moderate-	0.0-1.0	0.49	0.49	---	---	---
	9-44	35-48	1.50-1.70	0.20-2.00	0.11-0.15	High-----	0.0-1.0	0.17	0.20	---	---	---
	44-70	24-34	1.50-1.60	0.20-0.60	0.12-0.16	Moderate-	0.0-0.5	0.24	0.28	---	---	---
	70-80	18-34	1.60-1.80	0.06-0.60	0.04-0.12	Moderate-	0.0-0.5	0.24	0.28	---	---	---
HleAW:												
Holton----------	0-14	6-18	1.35-1.55	0.60-2.00	0.20-0.24	Low------	1.0-2.0	0.43	0.43	5	5	56
	14-41	6-18	1.35-1.55	0.60-2.00	0.14-0.22	Low------	0.0-1.0	0.32	0.37	---	---	---
	41-60	6-27	1.40-1.60	0.60-6.00	0.12-0.19	Low------	0.0-0.5	0.24	0.37	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Shrink-swell potential	Organic matter	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
JaeB2:												
Jennings--------	0-9	10-22	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	9-27	24-32	1.50-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	27-38	18-28	1.65-1.75	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	38-73	28-40	1.55-1.70	0.01-0.20	0.06-0.08	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	73-77	35-48	1.40-1.60	0.01-0.20	0.06-0.08	Moderate-	0.5-2.0	0.37	0.37	---	---	---
	77-87	---	---	0.00-0.20	---	---	---	---	---	---	---	---
JafC2:												
Jennings--------	0-9	10-22	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	9-27	24-32	1.50-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	27-38	18-28	1.65-1.75	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	38-73	28-40	1.55-1.70	0.01-0.20	0.06-0.08	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	73-77	35-48	1.40-1.60	0.01-0.20	0.06-0.08	Moderate-	0.5-2.0	0.37	0.37	---	---	---
	77-87	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Blocher, hard bedrock--------	0-9	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	3	5	56
	9-28	20-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.5-1.0	0.49	0.49	---	---	---
	28-58	35-45	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	58-75	35-45	1.50-1.70	0.06-0.20	0.10-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	75-85	---	---	0.00-0.06	---	---	---	---	---	---	---	---
JafC3:												
Jennings--------	0-3	20-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	3-17	24-32	1.50-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	17-30	18-28	1.65-1.75	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	30-69	28-40	1.55-1.70	0.01-0.20	0.06-0.08	Moderate-	0.0-0.5	0.28	0.32	---	---	---
	69-75	35-48	1.40-1.60	0.01-0.20	0.06-0.08	Moderate-	0.5-2.0	0.37	0.37	---	---	---
	75-85	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Blocher, hard bedrock--------	0-3	16-26	1.30-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	3-19	20-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.5-1.0	0.49	0.49	---	---	---
	19-48	35-45	1.50-1.70	0.06-0.20	0.11-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	48-70	35-45	1.50-1.70	0.06-0.20	0.10-0.16	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	70-80	---	---	0.00-0.06	---	---	---	---	---	---	---	---
MhyA, MhyB2:												
Medora----------	0-9	12-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	9-28	24-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	28-48	12-30	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.37	0.43	---	---	---
	48-80	27-44	1.40-1.60	0.20-2.00	0.06-0.08	Moderate-	0.0-0.5	0.20	0.24	---	---	---
MhyC2:												
Medora----------	0-8	12-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	8-21	24-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	21-45	12-30	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.37	0.43	---	---	---
	45-80	27-44	1.40-1.60	0.20-2.00	0.06-0.08	Moderate-	0.0-0.5	0.20	0.24	---	---	---
MhyC3:												
Medora----------	0-7	18-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	6	48
	7-16	24-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	16-35	12-30	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.37	0.43	---	---	---
	35-80	27-44	1.40-1.60	0.20-2.00	0.06-0.08	Moderate-	0.0-0.5	0.20	0.24	---	---	---
NaaA:												
Nabb-----------	0-10	10-22	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	10-18	14-22	1.40-1.60	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	18-35	20-30	1.50-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	35-76	18-28	1.65-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	76-80	24-38	1.60-1.70	0.01-0.06	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
NaaB2:												
Nabb------------	0-7	10-22	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	7-13	14-22	1.40-1.60	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	13-33	20-30	1.50-1.65	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.55	0.55	---	---	---
	33-71	18-28	1.65-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.49	---	---	---
	71-80	24-38	1.60-1.70	0.01-0.06	0.06-0.08	Moderate-	0.0-0.5	0.32	0.37	---	---	---
NamF:												
Negley----------	0-6	12-27	1.30-1.50	2.00-6.00	0.16-0.22	Low------	2.0-4.0	0.37	0.37	5	5	56
	6-13	18-35	1.30-1.60	0.60-6.00	0.10-0.16	Low------	0.0-0.5	0.15	0.28	---	---	---
	13-80	22-38	1.20-1.60	0.60-6.00	0.06-0.14	Low------	0.0-0.5	0.10	0.15	---	---	---
NanD3:												
Negley----------	0-3	27-33	1.30-1.55	0.60-6.00	0.10-0.14	Low------	0.5-2.0	0.28	0.28	4	6	48
	3-80	22-38	1.20-1.60	0.60-6.00	0.06-0.14	Low------	0.0-0.5	0.10	0.15	---	---	---
OfbAW:												
Oldenburg-------	0-9	8-18	1.30-1.50	0.60-2.00	0.18-0.22	Low------	1.0-2.0	0.37	0.37	5	5	56
	9-25	8-18	1.35-1.55	0.60-2.00	0.13-0.22	Low------	0.5-1.0	0.32	0.37	---	---	---
	25-60	5-18	1.35-1.55	0.60-6.00	0.09-0.19	Low------	0.0-0.5	0.24	0.37	---	---	---
PcrA:												
Pekin-----------	0-8	10-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	8-29	18-30	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.5-1.0	0.55	0.55	---	---	---
	29-58	20-32	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	58-80	10-30	1.40-1.60	0.20-0.60	0.06-0.08	Low------	0.0-0.5	0.49	0.55	---	---	---
PcrB2:												
Pekin-----------	0-6	10-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	6-29	18-30	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.5-1.0	0.55	0.55	---	---	---
	29-67	20-32	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	67-80	10-30	1.40-1.60	0.20-0.60	0.06-0.08	Low------	0.0-0.5	0.49	0.55	---	---	---
PcrC2:												
Pekin-----------	0-8	10-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	8-28	18-30	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.5-1.0	0.55	0.55	---	---	---
	28-57	20-32	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	57-80	10-30	1.40-1.60	0.20-0.60	0.06-0.08	Low------	0.0-0.5	0.49	0.55	---	---	---
PcrC3:												
Pekin-----------	0-6	10-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	0.5-2.0	0.49	0.49	2	5	56
	6-18	18-30	1.40-1.60	0.60-2.00	0.14-0.21	Low------	0.5-1.0	0.55	0.55	---	---	---
	18-42	20-32	1.70-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.55	0.55	---	---	---
	42-60	10-30	1.40-1.60	0.20-0.60	0.06-0.08	Low------	0.0-0.5	0.49	0.55	---	---	---
PhaA:												
Peoga-----------	0-8	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	5	5	56
	8-19	14-22	1.35-1.55	0.60-2.00	0.20-0.27	Low------	0.0-1.0	0.55	0.55	---	---	---
	19-36	18-34	1.40-1.55	0.20-0.60	0.14-0.24	Low------	0.0-0.5	0.55	0.55	---	---	---
	36-76	18-34	1.40-1.75	0.06-0.20	0.08-0.15	Low------	0.0-0.5	0.55	0.55	---	---	---
	76-80	22-34	1.35-1.55	0.06-0.20	0.06-0.10	Low------	0.0-0.5	0.55	0.55	---	---	---
PlpAH:												
Piopolis--------	0-10	27-35	1.20-1.40	0.06-0.20	0.21-0.23	Moderate-	1.0-3.0	0.43	0.43	5	7	38
	10-31	27-35	1.40-1.60	0.06-0.20	0.18-0.20	Moderate-	0.0-1.0	0.43	0.43	---	---	---
	31-60	25-38	1.50-1.70	0.06-0.20	0.18-0.20	Moderate-	0.0-1.0	0.43	0.43	---	---	---
Pml.												
Pits, quarry												

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								K	Kf	T		
	In	Pct	g/cc	In/hr	In/in		Pct					
RblC3:												
Rarden----------	0-6	27-38	1.35-1.55	0.20-0.60	0.20-0.23	Moderate-	0.5-2.0	0.43	0.43	2	7	38
	6-37	35-60	1.40-1.60	0.06-0.20	0.10-0.14	Moderate-	0.0-1.0	0.24	0.28	---	---	---
	37-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
RblD3:												
Rarden----------	0-4	27-38	1.35-1.55	0.20-0.60	0.20-0.23	Moderate-	0.5-2.0	0.43	0.43	2	7	38
	4-32	35-60	1.40-1.60	0.06-0.20	0.10-0.14	Moderate-	0.0-1.0	0.24	0.28	---	---	---
	32-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
RbmD5:												
Rarden----------	0-26	35-55	1.40-1.60	0.06-0.20	0.07-0.16	Moderate-	0.0-0.5	0.24	0.28	2	4	86
	26-60	---	---	0.00-0.06	---	---	---	---	---	---	---	---
RptG:												
Rohan-----------	0-4	15-34	1.20-1.50	0.60-2.00	0.10-0.16	Low------	1.0-3.0	0.24	0.43	1	5	56
	4-16	15-34	1.20-1.60	0.20-2.00	0.04-0.10	Low------	0.0-1.0	0.10	0.43	---	---	---
	16-26	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Jessietown------	0-5	12-27	1.20-1.40	0.60-2.00	0.18-0.23	Low------	0.5-4.0	0.43	0.43	2	5	56
	5-14	12-34	1.20-1.50	0.60-2.00	0.16-0.23	Low------	0.5-2.0	0.43	0.49	---	---	---
	14-30	15-45	1.20-1.50	0.60-2.00	0.06-0.18	Low------	0.5-2.0	0.15	0.37	---	---	---
	30-40	---	---	0.00-0.20	---	---	---	---	---	---	---	---
SceA:												
Scottsburg------	0-8	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	4	5	56
	8-30	24-30	1.50-1.60	0.60-2.00	0.14-0.24	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	30-47	24-34	1.60-1.70	0.06-0.20	0.08-0.14	Moderate-	0.0-0.5	0.37	0.43	---	---	---
	47-61	35-55	1.50-1.60	0.06-0.20	0.08-0.14	Moderate-	0.5-1.0	0.32	0.32	---	---	---
	61-63	---	---	0.06-0.20	---	---	0.5-2.0	---	---	---	---	---
	63-73	---	---	0.00-0.06	---	---	---	---	---	---	---	---
SceB2:												
Scottsburg------	0-8	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	4	5	56
	8-31	24-30	1.50-1.60	0.60-2.00	0.14-0.24	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	31-53	24-34	1.60-1.70	0.06-0.20	0.08-0.14	Moderate-	0.0-0.5	0.37	0.43	---	---	---
	53-61	35-55	1.50-1.60	0.06-0.20	0.08-0.14	Moderate-	0.5-1.0	0.32	0.32	---	---	---
	61-67	---	---	0.06-0.20	---	---	0.5-2.0	---	---	---	---	---
	67-77	---	---	0.00-0.06	---	---	---	---	---	---	---	---
SoaB, SoaC2:												
Spickert--------	0-7	10-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	7-31	24-32	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.55	0.55	---	---	---
	31-58	14-28	1.60-1.80	0.01-0.06	0.06-0.08	Low------	0.0-0.5	0.49	0.55	---	---	---
	58-64	14-33	1.50-1.70	0.06-0.60	0.06-0.08	Low------	0.0-0.5	0.28	0.49	---	---	---
	64-70	---	---	0.00-0.20	---	---	---	---	---	---	---	---
StaAH:												
Steff-----------	0-10	12-25	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	10-31	12-30	1.30-1.55	0.60-2.00	0.18-0.23	Low------	0.0-1.0	0.49	0.49	---	---	---
	31-60	10-25	1.40-1.65	0.60-6.00	0.08-0.21	Low------	0.0-0.5	0.28	0.49	---	---	---
StaAQ:												
Steff-----------	0-10	12-25	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	10-29	12-30	1.30-1.55	0.60-2.00	0.18-0.23	Low------	0.0-1.0	0.49	0.49	---	---	---
	29-60	10-25	1.40-1.65	0.60-6.00	0.08-0.21	Low------	0.0-0.5	0.28	0.49	---	---	---
StaAW:												
Steff-----------	0-11	12-25	1.30-1.50	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	11-41	12-30	1.30-1.55	0.60-2.00	0.18-0.23	Low------	0.0-1.0	0.49	0.49	---	---	---
	41-60	10-25	1.40-1.65	0.60-6.00	0.08-0.21	Low------	0.0-0.5	0.28	0.49	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
StdAH, StdAQ, StdAW:												
Stendal---------	0-8	12-26	1.30-1.55	0.60-2.00	0.22-0.24	Low------	1.0-3.0	0.43	0.43	5	6	48
	8-40	18-34	1.35-1.55	0.60-2.00	0.20-0.22	Low------	0.0-1.0	0.49	0.49	---	---	---
	40-60	15-34	1.35-1.55	0.60-2.00	0.20-0.22	Low------	0.0-0.5	0.49	0.49	---	---	---
StmB2, StmC:												
Stonehead-------	0-5	12-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	4	5	56
	5-30	26-35	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-1.0	0.49	0.49	---	---	---
	30-46	38-60.1.45-1.60		0.06-0.20	0.09-0.15	Moderate-	0.0-0.5	0.37	0.37	---	---	---
	46-65	28-38	1.45-1.60	0.06-0.20	0.06-0.16	Moderate-	0.0-0.5	0.43	0.43	---	---	---
	65-80	---	---	0.00-0.20	---	---	---	---	---	---	---	---
ThaC2:												
Trappist--------	0-7	7-27	1.20-1.55	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.49	0.49	2	5	56
	7-24	30-48	1.40-1.65	0.20-0.60	0.11-0.19	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	24-31	30-48	1.40-1.60	0.06-0.20	0.06-0.16	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	31-41	---	---	0.00-0.20	---	---	---	---	---	---	---	---
ThbC3:												
Trappist--------	0-6	27-35	1.20-1.55	0.60-2.00	0.15-0.23	Low------	0.5-2.0	0.43	0.43	1	7	38
	6-21	30-48	1.40-1.65	0.20-0.60	0.11-0.19	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	21-24	30-48	1.40-1.60	0.06-0.20	0.06-0.16	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	24-34	---	---	0.00-0.20	---	---	---	---	---	---	---	---
ThbD5:												
Trappist--------	0-3	35-45	1.35-1.55	0.60-2.00	0.12-0.20	Moderate-	0.0-1.0	0.43	0.43	1	7	38
	3-20	30-45	1.40-1.60	0.06-0.20	0.04-0.17	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	20-30	---	---	0.00-0.20	---	---	---	---	---	---	---	---
	30-40	---	---	0.00-0.06	---	---	---	---	---	---	---	---
ThcD3:												
Trappist--------	0-4	27-35	1.20-1.55	0.60-2.00	0.15-0.23	Low------	0.5-2.0	0.43	0.43	1	7	38
	4-21	30-48	1.40-1.65	0.20-0.60	0.11-0.19	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	21-27	30-48	1.40-1.60	0.06-0.20	0.06-0.16	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	27-37	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Rohan-----------	0-3	15-34	1.20-1.50	0.60-2.00	0.10-0.16	Low------	1.0-3.0	0.24	0.43	1	5	56
	3-12	15-34	1.20-1.60	0.20-2.00	0.04-0.10	Low------	0.0-1.0	0.10	0.43	---	---	---
	12-29	---	---	0.00-0.20	---	---	---	---	---	---	---	---
ThdD:												
Trappist--------	0-6	7-27	1.20-1.55	0.60-2.00	0.18-0.24	Low------	2.0-4.0	0.43	0.43	2	5	56
	6-30	30-48	1.40-1.65	0.20-0.60	0.11-0.19	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	30-35	30-48	1.40-1.60	0.06-0.20	0.06-0.16	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	35-45	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Rohan-----------	0-3	15-27	1.20-1.40	0.60-2.00	0.12-0.18	Low------	2.0-4.0	0.43	0.43	1	5	56
	3-16	15-34	1.20-1.60	0.20-2.00	0.04-0.10	Low------	0.0-1.0	0.10	0.43	---	---	---
	16-19	---	---	0.00-0.20	---	---	---	---	---	---	---	---
	19-29	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Uaa. Udorthents												
W. Water												
WaaAH, WaaAW:												
Wakeland--------	0-7	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	7-29	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	29-60	10-18	1.30-1.50	0.60-2.00	0.18-0.24	Low------	0.0-0.5	0.49	0.49	---	---	---

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Shrink- swell potential	Organic matter	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in		Pct					
WedB2:												
Weddel----------	0-8	12-20	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-3.0	0.55	0.55	4	5	56
	8-26	24-30	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.49	0.49	---	---	---
	26-39	22-30	1.60-1.70	0.06-0.20	0.08-0.10	Low------	0.0-0.5	0.43	0.55	---	---	---
	39-66	34-45	1.50-1.70	0.06-0.20	0.08-0.10	Moderate-	0.0-0.5	0.24	0.32	---	---	---
	66-75	35-50	1.40-1.60	0.01-0.06	0.05-0.10	Moderate-	0.0-0.5	0.32	0.37	---	---	---
	75-80	---	---	0.00-0.06	---	---	---	---	---	---	---	---
WhcD:												
Wellrock--------	0-4	10-22	1.30-1.50	0.60-2.00	0.18-0.24	Low------	2.0-4.0	0.43	0.43	4	5	56
	4-8	14-26	1.30-1.50	0.60-2.00	0.20-0.27	Low------	1.0-2.0	0.55	0.55	---	---	---
	8-28	24-34	1.40-1.60	0.60-2.00	0.14-0.21	Moderate-	0.5-1.0	0.49	0.49	---	---	---
	28-52	15-32	1.40-1.60	0.20-0.60	0.06-0.20	Low------	0.0-0.5	0.43	0.49	---	---	---
	52-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
Gnawbone--------	0-7	10-20	1.30-1.40	0.60-2.00	0.16-0.24	Low------	2.0-4.0	0.37	0.43	3	5	56
	7-35	24-34	1.40-1.60	0.60-2.00	0.11-0.20	Low------	0.0-1.0	0.43	0.49	---	---	---
	35-39	15-32	1.40-1.60	0.60-2.00	0.07-0.16	Low------	0.0-0.5	0.49	0.55	---	---	---
	39-60	---	---	0.00-0.20	---	---	---	---	---	---	---	---
WnmA:												
Whitcomb--------	0-9	12-24	1.30-1.60	0.60-2.00	0.18-0.24	Low------	1.0-2.0	0.55	0.55	4	5	56
	9-15	20-27	1.40-1.60	0.60-2.00	0.20-0.24	Low------	0.0-1.0	0.55	0.55	---	---	---
	15-30	24-32	1.50-1.60	0.60-2.00	0.14-0.21	Moderate-	0.0-0.5	0.43	0.43	---	---	---
	30-48	27-35	1.60-1.70	0.06-0.20	0.09-0.15	Moderate-	0.0-0.5	0.43	0.43	---	---	---
	48-61	35-50	1.50-1.60	0.06-0.20	0.09-0.15	Moderate-	0.0-2.0	0.32	0.37	---	---	---
	61-71	---	---	0.00-0.06	---	---	---	---	---	---	---	---
WokAH, WokAW:												
Wilbur----------	0-7	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	1.0-3.0	0.43	0.43	5	5	56
	7-32	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	0.5-2.0	0.55	0.55	---	---	---
	32-60	10-26	1.30-1.50	0.60-2.00	0.20-0.22	Low------	0.5-1.0	0.49	0.49	---	---	---
WomAM:												
Wilhite---------	0-9	35-40	1.40-1.60	0.06-0.20	0.12-0.18	Moderate-	1.0-3.0	0.37	0.37	5	4	86
	9-38	35-50	1.40-1.60	0.06-0.20	0.08-0.18	High-----	0.0-2.0	0.37	0.37	---	---	---
	38-60	35-50	1.40-1.60	0.01-0.06	0.08-0.18	High-----	0.0-1.0	0.37	0.37	---	---	---
WprAW, WpuAH:												
Wirt------------	0-8	10-18	1.30-1.55	0.60-2.00	0.19-0.24	Low------	1.0-3.0	0.37	0.37	5	5	56
	8-36	7-18	1.40-1.55	0.60-2.00	0.11-0.20	Low------	0.0-1.0	0.32	0.37	---	---	---
	36-60	4-18	1.45-1.60	0.60-6.00	0.07-0.19	Low------	0.0-0.5	0.24	0.37	---	---	---

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
AddA:				
Avonburg--------	0-11	7.0-20	4.5-7.3	---
	11-21	5.0-10	4.5-5.5	---
	21-37	14-19	3.6-5.0	---
	37-52	10-14	3.6-5.0	---
	52-83	10-14	3.6-5.5	---
	83-90	16-24	4.5-7.3	---
AddB2:				
Avonburg--------	0-7	7.0-20	4.5-7.3	---
	7-16	5.0-10	4.5-5.5	---
	16-32	14-19	3.6-5.0	---
	32-42	10-14	3.6-5.0	---
	42-63	10-14	3.6-5.5	---
	63-80	16-24	4.5-7.3	---
BbhA:				
Bartle----------	0-11	5.0-15	4.5-7.3	---
	11-17	4.0-14	3.6-6.0	---
	17-30	10-19	3.6-6.0	---
	30-55	10-19	3.6-5.5	---
	55-80	6.0-14	4.5-7.3	---
BbhB:				
Bartle----------	0-6	5.0-15	4.5-7.3	---
	6-12	4.0-14	3.6-6.0	---
	12-26	10-19	3.6-6.0	---
	26-59	10-19	3.6-5.5	---
	59-80	6.0-14	4.5-7.3	---
BcrAW:				
Beanblossom-----	0-7	7.0-19	5.1-7.3	---
	7-17	5.0-14	5.1-7.3	---
	17-54	4.0-14	5.6-6.5	---
	54-60	---	---	---
BdoB:				
Bedford---------	0-9	10-20	4.5-7.3	---
	9-24	11-24	3.6-6.0	---
	24-51	10-20	3.6-5.5	---
	51-80	24-60	3.6-5.5	---
BfbC2:				
Blocher, soft bedrock--------	0-8	9.0-20	4.5-7.3	---
	8-20	10-16	4.5-5.5	---
	20-61	24-30	4.5-7.3	---
	61-80	---	---	---
Weddel----------	0-8	8.0-20	4.5-7.3	---
	8-30	12-17	4.5-5.5	---
	30-50	12-17	4.5-5.0	---
	50-62	17-24	4.5-5.5	---
	62-67	17-22	4.5-6.0	---
	67-80	---	5.1-6.0	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
BfcC3:				
Blocher, soft bedrock--------	0-6	12-24	4.5-7.3	---
	6-11	10-16	4.5-5.5	---
	11-62	24-30	4.5-7.3	---
	62-80	---	---	---
Weddel----------	0-6	11-20	4.5-7.3	---
	6-17	12-17	4.5-5.5	---
	17-38	12-17	4.5-5.0	---
	38-55	17-22	4.5-5.5	---
	55-61	17-22	4.5-6.0	---
	61-80	---	5.1-6.0	---
BnyD3:				
Bonnell---------	0-3	12-20	4.5-7.3	---
	3-32	17-28	4.5-5.5	---
	32-54	12-25	5.1-7.8	0-10
	54-80	8.0-18	7.4-8.4	10-25
BobE5:				
Bonnell---------	0-3	12-20	4.5-7.3	---
	3-25	17-31	4.5-5.5	---
	25-38	11-27	5.1-7.8	0-10
	38-60	8.0-18	7.4-8.4	10-25
Hickory---------	0-4	12-20	4.5-7.3	---
	4-40	10-25	4.5-7.3	---
	40-60	6.0-15	7.4-8.4	2-25
BodAH:				
Bonnie----------	0-20	10-22	4.5-7.3	---
	20-47	10-17	4.5-5.5	---
	47-60	10-17	4.5-6.5	---
BodAW:				
Bonnie----------	0-8	10-22	4.5-7.3	---
	8-38	10-17	4.5-5.5	---
	38-60	10-17	4.5-6.5	---
BvoG:				
Brownstown------	0-6	5.0-10	3.6-6.5	---
	6-18	3.0-8.0	3.6-5.5	---
	18-36	3.0-8.0	3.6-5.5	---
	36-46	---	---	---
Gilwood---------	0-6	5.0-15	4.5-6.5	---
	6-11	7.0-11	4.5-5.5	---
	11-22	7.0-11	3.6-5.0	---
	22-32	7.0-11	3.6-5.0	---
	32-42	---	---	---
CkkB2:				
Cincinnati------	0-8	7.0-20	4.5-7.3	---
	8-31	6.0-14	4.5-5.5	---
	31-72	6.0-14	4.5-6.0	---
	72-80	10-22	4.5-6.5	---
CldC2:				
Cincinnati------	0-8	7.0-20	4.5-7.3	---
	8-24	6.0-14	4.5-5.5	---
	24-74	6.0-14	4.5-6.0	---
	74-80	10-22	4.5-6.5	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
CldC2:				
Blocher---------	0-7	9.0-20	4.5-7.3	---
	7-17	10-19	4.5-5.5	---
	17-44	12-27	4.5-5.5	---
	44-76	18-26	5.6-7.8	0-5
	76-80	4.0-15	7.4-8.4	5-25
CldC3:				
Cincinnati------	0-5	7.0-20	4.5-7.3	---
	5-14	6.0-14	4.5-5.5	---
	14-35	6.0-14	4.5-6.0	---
	35-78	10-22	4.5-6.5	---
	78-84	4.0-15	6.1-8.4	0-25
Blocher---------	0-3	9.0-20	4.5-7.3	---
	3-13	10-14	4.5-5.5	---
	13-47	12-27	4.5-5.5	---
	47-64	18-26	5.6-7.8	0-5
	64-80	4.0-15	7.4-8.4	5-25
CleC5:				
Cincinnati------	0-18	11-20	4.5-6.5	---
	18-42	7.0-14	4.5-5.5	---
	42-80	10-20	4.5-7.3	---
Blocher---------	0-9	11-20	4.5-5.5	---
	9-22	10-14	4.5-5.5	---
	22-57	12-27	4.5-5.5	---
	57-77	18-26	5.6-7.8	0-5
	77-80	4.0-10	7.4-8.4	5-25
ClfA:				
Cobbsfork-------	0-12	6.0-18	4.5-7.3	---
	12-27	5.0-10	4.5-5.5	---
	27-38	7.0-17	3.6-5.0	---
	38-50	10-14	3.6-5.0	---
	50-85	10-14	3.6-5.5	---
	85-90	15-24	5.1-7.3	---
ComC:				
Coolville-------	0-8	7.0-20	3.6-7.3	---
	8-21	8.0-17	3.6-5.5	---
	21-37	17-31	3.6-5.5	---
	37-44	13-19	4.5-5.5	---
	44-60	---	---	---
ComC3:				
Coolville-------	0-4	7.0-20	3.6-7.3	---
	4-17	8.0-17	3.6-5.5	---
	17-38	17-31	3.6-5.5	---
	38-43	13-19	4.5-5.5	---
	43-60	---	---	---
ConD:				
Coolville-------	0-5	7.0-20	3.6-7.3	---
	5-18	8.0-17	3.6-5.5	---
	18-39	17-31	3.6-5.5	---
	39-45	13-19	4.5-5.5	---
	45-60	---	---	---
Rarden----------	0-4	15-24	3.6-6.5	---
	4-36	11-30	3.6-5.5	---
	36-60	---	---	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
CwaAQ:				
Cuba------------	0-10	10-25	4.5-7.3	---
	10-47	6.0-17	4.5-5.5	---
	47-60	5.0-17	4.5-5.5	---
DbrG:				
Deam------------	0-3	8.0-12	3.6-5.0	---
	3-24	9.0-13	3.6-5.0	---
	24-36	9.0-14	4.5-5.5	---
	36-60	---	4.5-6.5	---
DddB2:				
Deputy----------	0-8	12-25	4.5-7.3	---
	8-27	8.0-18	4.5-6.0	---
	27-53	10-19	3.6-5.0	---
	53-77	---	3.6-5.0	---
	77-87	---	---	---
DddC2:				
Deputy----------	0-8	12-25	4.5-7.3	---
	8-27	8.0-18	4.5-6.0	---
	27-53	10-19	3.6-5.0	---
	53-77	---	3.6-5.0	---
	77-87	---	---	---
DddC3:				
Deputy----------	0-2	12-25	4.5-7.3	---
	2-20	8.0-18	4.5-6.0	---
	20-43	10-19	3.6-5.0	---
	43-60	---	3.6-5.0	---
	60-70	---	---	---
DfnA:				
Dubois----------	0-10	10-25	4.5-7.3	---
	10-17	6.0-14	4.5-6.0	---
	17-38	11-18	3.6-5.0	---
	38-82	9.0-16	3.6-5.5	---
	82-96	8.0-20	5.1-7.3	---
DfnB2:				
Dubois----------	0-6	10-25	4.5-7.3	---
	6-10	6.0-14	4.5-6.0	---
	10-28	11-18	3.6-5.0	---
	28-68	9.0-16	3.6-5.5	---
	68-80	8.0-20	5.1-7.3	---
DfoA:				
Dubois----------	0-10	10-25	4.5-7.3	---
	10-17	6.0-14	4.5-5.5	---
	17-38	11-18	3.6-5.0	---
	38-82	9.0-16	3.6-5.5	---
	82-96	8.0-20	5.1-7.3	---
Urban land.				
EepA:				
Elkinsville-----	0-10	6.0-20	4.5-7.3	---
	10-43	9.0-18	4.5-7.3	---
	43-53	13-21	4.5-5.5	---
	53-66	10-20	4.5-5.5	---
	66-80	8.0-15	4.5-6.0	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
EepB:				
Elkinsville-----	0-12	6.0-20	4.5-7.3	---
	12-48	9.0-18	4.5-7.3	---
	48-55	13-21	4.5-5.5	---
	55-60	10-20	4.5-6.0	---
EepF:				
Elkinsville-----	0-6	6.0-20	4.5-7.3	---
	6-61	9.0-18	4.5-7.3	---
	61-75	10-20	4.5-5.5	---
	75-80	8.0-15	4.5-6.0	---
GgfD:				
Gilwood---------	0-6	6.0-15	4.5-6.5	---
	6-11	7.0-11	4.5-5.5	---
	11-22	7.0-11	3.6-5.0	---
	22-32	7.0-11	3.6-5.0	---
	32-42	---	---	---
Wrays-----------	0-6	8.0-20	4.5-7.3	---
	6-25	8.0-16	4.5-6.5	---
	25-34	14-21	3.6-5.0	---
	34-44	7.0-14	3.6-5.0	---
	44-54	---	---	---
GmaG:				
Gnawbone--------	0-7	5.0-16	3.6-5.5	---
	7-27	7.0-13	3.6-5.0	---
	27-40	7.0-12	3.6-5.0	---
	40-50	---	---	---
Kurtz-----------	0-6	5.0-12	3.6-5.0	---
	6-36	9.0-14	3.6-5.0	---
	36-47	9.0-14	4.5-5.5	---
	47-57	---	---	---
HccA:				
Haubstadt-------	0-10	9.0-22	4.5-7.3	---
	10-32	8.0-17	4.5-5.5	---
	32-76	7.0-14	4.5-5.5	---
	76-80	14-20	4.5-7.3	---
HccB2:				
Haubstadt-------	0-7	9.0-22	4.5-7.3	---
	7-32	8.0-17	4.5-5.5	---
	32-61	7.0-14	4.5-5.5	---
	61-80	14-20	4.5-7.3	---
HcdC2:				
Haubstadt-------	0-5	9.0-22	4.5-7.3	---
	5-29	8.0-17	4.5-5.5	---
	29-58	7.0-14	4.5-5.5	---
	58-80	14-20	4.5-7.3	---
Shircliff-------	0-7	9.0-25	5.1-7.3	---
	7-13	10-20	4.5-6.0	---
	13-38	16-24	4.5-7.8	0-5
	38-60	10-18	7.9-8.4	10-45

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
HceC3:				
Haubstadt-------	0-6	10-25	4.5-7.3	---
	6-17	8.0-17	4.5-5.5	---
	17-47	7.0-14	4.5-5.5	---
	47-80	14-20	4.5-7.3	---
Shircliff-------	0-6	12-25	5.1-7.3	---
	6-13	16-24	4.5-6.0	---
	13-39	16-24	4.5-7.8	0-5
	39-60	10-18	7.9-8.4	10-45
HcfB:				
Haubstadt-------	0-7	9.0-22	4.5-7.3	---
	7-32	8.0-17	4.5-5.5	---
	32-61	7.0-14	4.5-5.5	---
	61-80	14-20	4.5-7.3	---
Urban land.				
HcgAH:				
Haymond---------	0-10	4.0-15	5.6-7.3	---
	10-44	10-16	5.6-7.3	---
	44-60	3.0-16	6.1-7.8	---
HcgAQ:				
Haymond---------	0-11	4.0-15	5.6-7.3	---
	11-50	10-16	5.6-7.3	---
	50-60	3.0-16	6.1-7.8	---
HcgAW:				
Haymond---------	0-9	4.0-15	5.6-7.3	---
	9-44	10-16	5.6-7.3	---
	44-60	3.0-16	6.1-7.8	---
HeeG:				
Hickory---------	0-6	7.0-19	4.5-6.0	---
	6-38	10-22	4.5-6.0	---
	38-44	9.0-19	5.6-8.4	0-15
	44-60	5.0-15	7.4-8.4	0-25
HerE:				
Hickory---------	0-11	7.0-19	4.5-6.0	---
	11-39	10-22	4.5-6.0	---
	39-45	9.0-19	5.6-8.4	0-15
	45-60	5.0-15	7.4-8.4	0-25
Bonnell---------	0-6	10-18	4.5-7.3	---
	6-9	11-19	4.5-5.5	---
	9-44	17-28	4.5-5.5	---
	44-70	12-18	5.1-7.8	0-10
	70-80	8.0-18	7.4-8.4	10-25
HleAW:				
Holton----------	0-14	5.0-12	5.6-7.3	---
	14-41	3.0-10	5.1-7.3	---
	41-60	3.0-14	6.1-7.3	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
JaeB2:				
Jennings--------	0-9	7.0-20	4.5-7.3	---
	9-27	8.0-15	3.6-7.3	---
	27-38	6.0-14	3.6-5.0	---
	38-73	10-27	3.6-5.0	---
	73-77	6.0-19	3.6-5.0	---
	77-87	---	---	---
JafC2:				
Jennings--------	0-9	7.0-20	4.5-7.3	---
	9-27	8.0-15	3.6-7.3	---
	27-38	6.0-14	3.6-5.0	---
	38-73	10-27	3.6-5.0	---
	73-77	6.0-19	3.6-5.0	---
	77-87	---	---	---
Blocher, hard bedrock--------	0-9	9.0-20	4.5-7.3	---
	9-28	10-14	4.5-5.5	---
	28-58	12-27	4.5-5.5	---
	58-75	10-20	4.5-5.5	---
	75-85	---	---	---
JafC3:				
Jennings--------	0-3	7.0-20	4.5-7.3	---
	3-17	8.0-15	3.6-7.3	---
	17-30	6.0-14	3.6-5.0	---
	30-69	10-27	3.6-5.0	---
	69-75	6.0-19	3.6-5.0	---
	75-85	---	---	---
Blocher, hard bedrock--------	0-3	9.0-22	4.5-7.3	---
	3-19	10-14	4.5-5.5	---
	19-48	12-27	4.5-5.5	---
	48-70	10-20	4.5-5.5	---
	70-80	---	---	---
MhyA, MhyB2:				
Medora----------	0-9	8.0-18	4.5-7.3	---
	9-28	9.0-14	4.5-5.5	---
	28-48	6.0-13	4.5-5.0	---
	48-80	13-22	4.5-5.5	---
MhyC2:				
Medora----------	0-8	8.0-18	4.5-7.3	---
	8-21	9.0-14	4.5-5.5	---
	21-45	6.0-13	4.5-5.0	---
	45-80	13-22	4.5-5.5	---
MhyC3:				
Medora----------	0-7	9.0-24	4.5-7.3	---
	7-16	9.0-14	4.5-5.5	---
	16-35	6.0-13	4.5-5.0	---
	35-80	13-22	4.5-5.5	---
NaaA:				
Nabb------------	0-10	7.0-20	4.5-7.3	---
	10-18	5.0-12	4.5-7.3	---
	18-35	10-19	3.6-5.5	---
	35-76	7.0-14	3.6-5.5	---
	76-80	15-22	5.1-7.3	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
NaaB2:				
Nabb	0-7	7.0-20	4.5-7.3	---
	7-13	7.0-13	4.5-7.3	---
	13-33	10-19	3.6-5.5	---
	33-71	7.0-14	3.6-5.5	---
	71-80	15-22	5.1-7.3	---
NamF:				
Negley	0-6	8.0-22	4.5-7.3	---
	6-13	7.0-14	4.5-6.5	---
	13-80	11-25	4.5-6.0	---
NanD3:				
Negley	0-3	12-26	4.5-7.3	---
	3-80	11-25	4.5-6.0	---
OfbAW:				
Oldenburg	0-9	4.0-12	5.1-7.3	---
	9-25	4.0-12	5.1-7.3	---
	25-60	2.0-10	5.6-7.3	---
PcrA:				
Pekin	0-8	6.0-22	4.5-7.3	---
	8-29	8.0-15	4.5-7.3	---
	29-58	10-18	3.6-5.5	---
	58-80	8.0-18	4.5-7.3	---
PcrB2:				
Pekin	0-6	6.0-22	4.5-7.3	---
	6-29	8.0-15	4.5-7.3	---
	29-67	10-18	3.6-5.5	---
	67-80	8.0-18	4.5-7.3	---
PcrC2:				
Pekin	0-8	6.0-22	4.5-7.3	---
	8-28	8.0-15	4.5-7.3	---
	28-57	10-18	3.6-5.5	---
	57-80	8.0-18	4.5-7.3	---
PcrC3:				
Pekin	0-6	6.0-22	4.5-7.3	---
	6-18	8.0-15	4.5-7.3	---
	18-42	10-18	3.6-5.5	---
	42-60	8.0-18	4.5-7.3	---
PhaA:				
Peoga	0-8	8.0-22	4.5-7.3	---
	8-19	6.0-11	3.6-5.5	---
	19-36	9.0-20	3.6-5.5	---
	36-76	12-20	3.6-6.0	---
	76-80	12-22	5.1-7.3	---
PlpAH:				
Piopolis	0-10	8.0-20	5.1-7.3	---
	10-31	8.0-14	4.5-5.5	---
	31-60	8.0-14	4.5-7.3	---
Pml.				
Pits, quarry				

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
RblC3:				
Rarden----------	0-6	15-25	3.6-7.3	---
	6-37	11-30	3.6-5.5	---
	37-60	---	---	---
RblD3:				
Rarden----------	0-4	15-25	3.6-7.3	---
	4-32	11-30	3.6-5.5	---
	32-60	---	---	---
RbmD5:				
Rarden----------	0-26	11-25	3.6-5.5	---
	26-60	---	---	---
RptG:				
Rohan-----------	0-4	9.0-20	4.5-6.0	---
	4-16	4.0-16	3.6-5.5	---
	16-26	---	---	---
Jessietown------	0-5	5.0-14	3.6-5.5	---
	5-14	6.0-19	3.6-5.5	---
	14-30	6.0-22	3.6-5.5	---
	30-40	---	---	---
SceA:				
Scottsburg------	0-8	9.0-22	4.5-7.3	---
	8-30	6.0-14	4.5-5.5	---
	30-47	9.0-13	3.6-5.0	---
	47-61	12-17	3.6-5.0	---
	61-63	---	---	---
	63-73	---	---	---
SceB2:				
Scottsburg------	0-8	9.0-22	4.5-7.3	---
	8-31	6.0-14	4.5-5.5	---
	31-53	9.0-13	3.6-5.0	---
	53-61	12-17	3.6-5.0	---
	61-67	---	---	---
	67-77	---	---	---
SoaB, SoaC2				
Spickert--------	0-7	8.0-20	3.6-7.3	---
	7-31	5.0-15	4.5-6.0	---
	31-58	9.0-18	4.5-5.0	---
	58-64	9.0-20	3.6-5.0	---
	64-70	---	---	---
StaAH:				
Steff-----------	0-10	8.0-20	4.5-7.3	---
	10-31	10-21	4.5-5.5	---
	31-60	6.0-17	4.5-5.5	---
StaAQ:				
Steff-----------	0-10	8.0-20	4.5-7.3	---
	10-29	10-21	4.5-5.5	---
	29-60	6.0-17	4.5-5.5	---
StaAW:				
Steff-----------	0-11	8.0-20	4.5-7.3	---
	11-41	10-21	4.5-5.5	---
	41-60	6.0-17	4.5-5.5	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
StdAH, StdAQ, StdAW:				
Stendal---------	0-8	8.0-20	4.5-7.3	---
	8-40	6.0-17	4.5-5.5	---
	40-60	6.0-17	4.5-5.5	---
StmB2, StmC:				
Stonehead-------	0-5	7.0-20	4.5-7.3	---
	5-30	6.0-16	3.6-5.5	---
	30-46	10-27	4.5-5.5	---
	46-65	11-16	4.5-6.5	---
	65-80	---	---	---
ThaC2:				
Trappist--------	0-7	9.0-20	3.6-7.3	---
	7-24	11-17	3.6-5.5	---
	24-31	6.0-14	3.6-5.5	---
	31-41	---	---	---
ThbC3:				
Trappist--------	0-6	13-24	3.6-5.5	---
	6-21	11-17	3.6-5.5	---
	21-24	6.0-14	3.6-5.5	---
	24-34	---	---	---
ThbD5:				
Trappist--------	0-3	13-24	3.6-5.5	---
	3-20	11-17	3.6-5.5	---
	20-30	---	---	---
	30-40	---	---	---
ThcD3:				
Trappist--------	0-4	13-24	3.6-7.3	---
	4-21	11-17	3.6-5.5	---
	21-27	6.0-14	3.6-5.5	---
	27-37	---	---	---
Rohan-----------	0-3	9.0-22	4.5-6.0	---
	3-12	4.0-16	3.6-5.5	---
	12-29	---	---	---
ThdD:				
Trappist--------	0-6	9.0-20	3.6-7.3	---
	6-30	11-17	3.6-5.5	---
	30-35	6.0-14	3.6-5.5	---
	35-45	---	---	---
Rohan-----------	0-3	9.0-22	4.5-7.3	---
	3-16	4.0-16	3.6-5.5	---
	16-19	---	---	---
	19-29	---	---	---
Uaa. Udorthents				
W. Water				
WaaAH, WaaAW:				
Wakeland--------	0-7	4.0-12	5.6-7.3	---
	7-29	4.0-12	5.6-7.3	---
	29-60	4.0-12	5.6-7.3	---

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100g	pH	Pct
WedB2:				
Weddel----------	0-8	8.0-20	4.5-7.3	---
	8-26	12-17	4.5-5.5	---
	26-39	12-17	4.5-5.0	---
	39-66	17-24	4.5-5.5	---
	66-75	17-22	4.5-6.0	---
	75-80	---	5.1-6.0	---
WhcD:				
Wellrock--------	0-4	9.0-20	4.5-7.3	---
	4-8	5.0-10	3.6-6.5	---
	8-28	7.0-16	3.6-5.0	---
	28-52	7.0-21	3.6-5.0	---
	52-60	---	---	---
Gnawbone--------	0-7	9.0-20	3.6-7.3	---
	7-35	7.0-13	3.6-5.0	---
	35-39	7.0-12	3.6-5.0	---
	39-60	---	---	---
WnmA:				
Whitcomb--------	0-9	8.0-20	4.5-7.3	---
	9-15	7.0-14	3.6-5.0	---
	15-30	8.0-17	3.6-5.0	---
	30-48	14-20	3.6-5.0	---
	48-61	12-20	3.6-5.0	---
	61-71	---	---	---
WokAH, WokAW:				
Wilbur----------	0-7	4.0-16	5.6-7.3	---
	7-32	4.0-15	5.6-7.3	---
	32-60	4.0-16	5.6-7.3	---
WomAM:				
Wilhite---------	0-9	14-25	5.1-7.3	---
	9-38	12-30	5.1-7.3	---
	38-60	12-26	5.1-7.3	---
WprAW, WpuAH:				
Wirt------------	0-8	6.0-15	5.6-7.3	---
	8-36	4.0-12	5.6-7.3	---
	36-60	3.0-12	5.6-7.3	---

Table 20.--Water Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
AddA, AddB2:								
Avonburg	C	None	---	---	0.5-2.0	Perched	Dec-Apr	---
BbhA, BbhB:								
Bartle	C	None	---	---	0.5-2.0	Perched	Dec-Apr	---
BcrAW:								
Beanblossom	B	Occasional	Very brief	Jan-Jun	3.5-5.0	Apparent	Dec-May	---
BdoB:								
Bedford	C	None	---	---	1.5-2.5	Perched	Dec-Apr	---
BfbC2:								
Blocher, soft bedrock	C	None	---	---	2.0-3.0	Perched	Dec-Apr	---
Weddel	C	None	---	---	1.5-3.0	Perched	Dec-Apr	---
BfcC3:								
Blocher, soft bedrock	C	None	---	---	2.0-3.0	Perched	Dec-Apr	---
Weddel	C	None	---	---	1.0-2.5	Perched	Dec-Apr	---
BnyD3:								
Bonnell	C	None	---	---	>6.0	---	---	---
BobE5:								
Bonnell	C	None	---	---	>6.0	---	---	---
Hickory	B	None	---	---	>6.0	---	---	---
BodAH:								
Bonnie	C/D	Frequent	Brief	Jan-Jun	0.0-1.0	Apparent	Dec-May	0.5
BodAW:								
Bonnie	C/D	Occasional	Very brief	Jan-Jun	0.0-1.0	Apparent	Dec-May	0.5
BvoG:								
Brownstown	B	None	---	---	>6.0	---	---	---
Gilwood	B	None	---	---	>6.0	---	---	---
CkkB2:								
Cincinnati	C	None	---	---	2.0-3.0	Perched	Dec-Apr	---
CldC2:								
Cincinnati	C	None	---	---	2.0-3.0	Perched	Dec-Apr	---
Blocher	C	None	---	---	2.0-3.0	Perched	Dec-Apr	---
CldC3, CleC5:								
Cincinnati	C	None	---	---	1.5-2.0	Perched	Dec-Apr	---
Blocher	C	None	---	---	2.0-3.0	Perched	Dec-Apr	---
ClfA:								
Cobbsfork	C	None	---	---	0.0-1.0	Perched	Dec-May	0.5

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
ComC, ComC3:								
Coolville-------	C	None-------	---	---	1.0-2.0	Perched	Jan-Apr	---
ConD:								
Coolville-------	C	None-------	---	---	1.0-2.0	Perched	Jan-Apr	---
Rarden----------	C	None-------	---	---	1.0-2.0	Perched	Dec-Apr	---
CwaAQ:								
Cuba------------	B	Rare-------	---	---	>6.0	---	---	---
DbrG:								
Deam------------	C	None-------	---	---	>6.0	---	---	---
DddB2, DddC2, DddC3:								
Deputy----------	C	None-------	---	---	1.5-2.5	Perched	Dec-Apr	---
DfnA, DfnB2:								
Dubois----------	C	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
DfoA:								
Dubois----------	C	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
Urban land.								
EepA, EepB, EepF:								
Elkinsville-----	B	None-------	---	---	>6.0	---	---	---
GgfD:								
Gilwood---------	B	None-------	---	---	>6.0	---	---	---
Wrays-----------	B	None-------	---	---	>6.0	---	---	---
GmaG:								
Gnawbone--------	B	None-------	---	---	>6.0	---	---	---
Kurtz-----------	C	None-------	---	---	>6.0	---	---	---
HccA, HccB2:								
Haubstadt-------	C	None-------	---	---	1.5-2.0	Perched	Dec-Apr	---
HcdC2:								
Haubstadt-------	C	None-------	---	---	1.5-2.0	Perched	Dec-Apr	---
Shircliff-------	C	None-------	---	---	1.5-2.5	Perched	Dec-Apr	---
HceC3:								
Haubstadt-------	C	None-------	---	---	1.0-1.5	Perched	Dec-Apr	---
Shircliff-------	C	None-------	---	---	1.5-2.5	Perched	Dec-Apr	---
HcfB:								
Haubstadt-------	C	None-------	---	---	1.5-2.0	Perched	Dec-Apr	---
Urban land.								
HcgAH:								
Haymond---------	B	Frequent---	Brief-----	Jan-Jun	>6.0	---	---	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
HcgAQ:								
Haymond---------	B	Rare-------	---	---	>6.0	---	---	---
HcgAW:								
Haymond---------	B	Occasional-	Very brief	Jan-Jun	>6.0	---	---	---
HeeG:								
Hickory---------	B	None-------	---	---	>6.0	---	---	---
HerE:								
Hickory---------	B	None-------	---	---	>6.0	---	---	---
Bonnell---------	C	None-------	---	---	>6.0	---	---	---
HleAW:								
Holton----------	C	Occasional-	Very brief	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
JaeB2:								
Jennings--------	C	None-------	---	---	2.0-3.0	Perched	Dec-Apr	---
JafC2:								
Jennings--------	C	None-------	---	---	2.0-3.0	Perched	Dec-Apr	---
Blocher, hard bedrock--------	C	None-------	---	---	2.0-3.0	Perched	Jan-Mar	---
JafC3:								
Jennings--------	C	None-------	---	---	1.5-2.5	Perched	Dec-Apr	---
Blocher, hard bedrock--------	C	None-------	---	---	2.0-3.0	Perched	Jan-Mar	---
MhyA, MhyB2, MhyC2:								
Medora----------	C	None-------	---	---	1.5-3.0	Perched	Dec-Apr	---
MhyC3:								
Medora----------	C	None-------	---	---	1.0-2.5	Perched	Dec-Apr	---
NaaA, NaaB2:								
Nabb------------	C	None-------	---	---	1.5-2.0	Perched	Dec-Apr	---
NamF, NanD3:								
Negley----------	B	None-------	---	---	>6.0	---	---	---
OfbAW:								
Oldenburg-------	B	Occasional-	Very brief	Jan-Jun	1.5-2.5	Apparent	Dec-Apr	---
PcrA, PcrB2, PcrC2:								
Pekin-----------	C	None-------	---	---	1.5-2.0	Perched	Dec-Apr	---
PcrC3:								
Pekin-----------	C	None-------	---	---	1.0-2.0	Perched	Dec-Apr	---
PhaA:								
Peoga-----------	C	None-------	---	---	0.0-1.0	Perched	Dec-May	0.5
PlpAH:								
Piopolis--------	C/D	Frequent---	Brief-----	Jan-Jun	0.0-1.0	Apparent	Dec-May	1.0

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Flooding: Frequency	Flooding: Duration	Flooding: Months	High water table and ponding: Water table depth	High water table and ponding: Kind of water table	High water table and ponding: Months	High water table and ponding: Maximum ponding depth
					Ft			Ft
Pml. Pits, quarry								
RblC3, RblD3, RbmD5:								
Rarden	C	None	---	---	1.0-2.0	Perched	Dec-Apr	---
RptG:								
Rohan	D	None	---	---	>6.0	---	---	---
Jessietown	B	None	---	---	>6.0	---	---	---
SceA, SceB2:								
Scottsburg	C	None	---	---	1.5-3.0	Perched	Dec-Apr	---
SoaB:								
Spickert	C	None	---	---	1.5-2.5	Perched	Jan-Apr	---
SoaC2:								
Spickert	C	None	---	---	1.5-2.5	Perched	Jan-Apr	---
StaAH:								
Steff	B	Frequent	Brief	Jan-Jun	1.5-2.5	Apparent	Dec-Apr	---
StaAQ:								
Steff	B	Rare	---	---	1.5-2.5	Apparent	Dec-Apr	---
StaAW:								
Steff	B	Occasional	Very Brief	Jan-Jun	1.5-2.5	Apparent	Dec-Apr	---
StdAH:								
Stendal	C	Frequent	Brief	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
StdAQ:								
Stendal	C	Rare	---	---	0.5-2.0	Apparent	Dec-Apr	---
StdAW:								
Stendal	C	Occasional	Very brief	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
StmB2, StmC:								
Stonehead	C	None	---	---	2.0-3.0	Perched	Jan-Apr	---
ThaC2, ThbC3, ThbD5:								
Trappist	C	None	---	---	>6.0	---	---	---
ThcD3, ThdD:								
Trappist	C	None	---	---	>6.0	---	---	---
Rohan	D	None	---	---	>6.0	---	---	---
Uaa:								
Udorthents	--	None	---	---	>6.0	---	---	---
W. Water								
WaaAH:								
Wakeland	C	Frequent	Brief	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---

Table 20.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table and ponding			
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Maximum ponding depth
					Ft			Ft
WaaAW:								
Wakeland--------	C	Occasional-	Very brief	Jan-Jun	0.5-2.0	Apparent	Dec-Apr	---
WedB2:								
Weddel----------	C	None-------	---	---	1.5-3.0	Perched	Dec-Apr	---
WhcD:								
Wellrock--------	B	None-------	---	---	>6.0	---	---	---
Gnawbone--------	B	None-------	---	---	>6.0	---	---	---
WnmA:								
Whitcomb--------	C	None-------	---	---	0.5-2.0	Perched	Dec-Apr	---
WokAH:								
Wilbur----------	B	Frequent---	Brief-----	Jan-Jun	1.5-2.5	Apparent	Dec-Apr	---
WokAW:								
Wilbur----------	B	Occasional-	Very brief	Jan-Jun	1.5-2.5	Apparent	Dec-Apr	---
WomAM:								
Wilhite---------	C/D	Frequent---	Brief-----	Jan-Jun	0.0-0.5	Apparent	Nov-Jul	1.0
WprAW:								
Wirt------------	B	Occasional-	Very brief	Jan-Jun	>6.0	---	---	---
WpuAH:								
Wirt------------	B	Frequent---	Brief-----	Jan-Jun	>6.0	---	---	---

Table 21.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Bedrock		Potential for frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
AddA, AddB2:					
Avonburg	>80	---	High	High	High.
BbhA, BbhB:					
Bartle	>80	---	High	High	High.
BcrAW:					
Beanblossom	40-60	Soft	High	Moderate	Moderate.
BdoB:					
Bedford	>80	---	High	High	High.
BfbC2, BfcC3:					
Blocher, soft bedrock	60-80	Soft	High	High	High.
Weddel	60-90	Soft	High	High	High.
BnyD3:					
Bonnell	>80	---	Moderate	High	High.
BobE5:					
Bonnell	>80	---	Moderate	High	High.
Hickory	>80	---	Moderate	Moderate	Moderate.
BodAH, BodAW:					
Bonnie	>60	---	High	High	High.
BvoG:					
Brownstown	20-40	Hard	Moderate	High	High.
Gilwood	20-40	Hard	Moderate	Moderate	High.
CkkB2:					
Cincinnati	>80	---	High	Moderate	High.
CldC2, CldC3, CleC5:					
Cincinnati	>80	---	High	Moderate	High.
Blocher	>80	---	High	High	High.
ClfA:					
Cobbsfork	>80	---	High	High	High.
ComC, ComC3:					
Coolville	40-60	Soft	High	High	High.
ConD:					
Coolville	40-60	Soft	High	High	High.
Rarden	20-40	Soft	High	High	High.
CwaAQ:					
Cuba	>60	---	High	Low	High.

Table 21.--Soil Features--Continued

Map symbol and soil name	Bedrock		Potential for frost action	Risk of corrosion	
	Depth	Hardness		Uncoated steel	Concrete
	In				
DbrG:					
Deam	20-40	Soft	Moderate	High	High.
DddB2, DddC2, DddC3:					
Deputy	40-60	Soft	High	High	High.
DfnA, DfnB2:					
Dubois	>80	---	High	High	High.
DfoA:					
Dubois	>80	---	High	High	High.
Urban land.					
EepA, EepB, EepF:					
Elkinsville	>80	---	High	Moderate	High.
GgfD:					
Gilwood	20-40	Hard	High	Moderate	High.
Wrays	40-60	Hard	High	High	High.
GmaG:					
Gnawbone	20-40	Soft	Moderate	Moderate	High.
Kurtz	40-60	Soft	High	Moderate	High.
HccA, HccB2, HcdC2, HceC3:					
Haubstadt	>80	---	High	Moderate	High.
Shircliff	>80	---	High	High	Moderate.
HcfB:					
Haubstadt	>80	---	High	Moderate	High.
Urban land.					
HcgAH, HcgAQ, HcgAW:					
Haymond	>60	---	High	Low	Low.
HeeG:					
Hickory	>80	---	Moderate	Moderate	Moderate.
HerE:					
Hickory	>80	---	Moderate	Moderate	Moderate.
Bonnell	>80	---	Moderate	High	High.
HleAW:					
Holton	>60	---	High	High	Moderate.
JaeB2:					
Jennings	60-90	Hard	High	High	High.
JafC2, JefC3:					
Jennings	60-90	Hard	High	High	High.
Blocher, hard bedrock	60-80	Hard	High	High	High.

Table 21.--Soil Features--Continued

Map symbol and soil name	Bedrock Depth	Bedrock Hardness	Potential for frost action	Risk of corrosion Uncoated steel	Risk of corrosion Concrete
	In				
MhyA, MhyB2, MhyC2, MhyC3:					
Medora----------	>80	---	High--------	Moderate----	High.
NaaA, NaaB2:					
Nabb------------	>80	---	High--------	High--------	High.
NamF, NanD3:					
Negley----------	>80	---	Moderate----	Low---------	High.
OfbAW:					
Oldenburg-------	>60	---	Moderate----	Moderate----	Moderate.
PcrA, PcrB2, PcrC2, PcrC3:					
Pekin-----------	>80	---	High--------	High--------	High.
PhaA:					
Peoga-----------	>80	---	High--------	High--------	High.
PlpAH:					
Piopolis--------	>60	---	High--------	High--------	Moderate.
Pml.					
Pits, quarry					
RblC3, RblD3, RbmD5:					
Rarden----------	20-40	Soft	High--------	High--------	High.
RptG:					
Rohan-----------	10-20	Hard	Moderate----	High--------	High.
Jessietown------	20-40	Hard	High--------	Moderate----	High.
SceA, SceB2:					
Scottsburg------	60-80	Hard	High--------	High--------	High.
SoaB, SoaC2:					
Spickert--------	50-72	Hard	High--------	High--------	High.
StaAH, StaAQ, StaAW:					
Steff-----------	>60	---	High--------	Moderate----	High.
StdAH, StdAQ, StdAW:					
Stendal---------	>60	---	High--------	High--------	High.
StmB2:					
Stonehead-------	44-75	Soft	High--------	High--------	High.
StmC:					
Stonehead-------	44-75	Soft	High--------	High--------	High.
ThaC2, ThbC3, ThbD5:					
Trappist--------	20-40	Hard	High--------	High--------	High.
ThcD3, ThdD:					
Trappist--------	20-40	Hard	High--------	High--------	High.
Rohan-----------	10-20	Hard	Moderate----	High--------	High.

Table 21.--Soil Features--Continued

Map symbol and soil name	Bedrock: Depth	Bedrock: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
	In				
Uaa. Udorthents					
W. Water					
WaaAH, WaaAW:					
Wakeland	>60	---	High	Moderate	Low.
WedB2:					
Weddel	60-90	Soft	High	High	High.
WhcD:					
Wellrock	40-60	Soft	High	High	High.
Gnawbone	20-40	Soft	High	Moderate	High.
WnmA:					
Whitcomb	60-80	Hard	High	High	High.
WokAH, WokAW:					
Wilbur	>60	---	High	Moderate	Low.
WomAM:					
Wilhite	>60	---	Moderate	High	Moderate.
WprAW:					
Wirt	>60	---	Moderate	Low	Moderate.
WpuAH:					
Wirt	>60	---	High	Low	Moderate.

Table 22.--Classification of the Soils

Soil name	Family or higher taxonomic class
Avonburg	Fine-silty, mixed, active, mesic Aeric Fragic Glossaqualfs
Bartle	Fine-silty, mixed, active, mesic Aeric Fragiaqualfs
Beanblossom	Loamy-skeletal, mixed, active, mesic Fluventic Dystrudepts
Bedford	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Blocher	Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs
Bonnell	Fine, mixed, active, mesic Typic Hapludalfs
Bonnie	Fine-silty, mixed, active, acid, mesic Typic Fluvaquents
Brownstown	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Cincinnati	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Cobbsfork	Fine-silty, mixed, active, mesic Fragic Glossaqualfs
Coolville	Fine, mixed, active, mesic Aquultic Hapludalfs
Cuba	Fine-silty, mixed, active, mesic Fluventic Dystrudepts
Deam	Fine, illitic, mesic Ultic Hapludalfs
Deputy	Fine-silty, mixed, active, mesic Aquic Hapludults
Dubois	Fine-silty, mixed, active, mesic Aeric Fragiaqualfs
Elkinsville	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Gilwood	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Gnawbone	Fine-silty, mixed, semiactive, mesic Typic Hapludults
Haubstadt	Fine-silty, mixed, active, mesic Aquic Fragiudalfs
Haymond	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Hickory	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Holton	Coarse-loamy, mixed, active, nonacid, mesic Aeric Endoaquepts
Jennings	Fine-silty, mixed, active, mesic Typic Fragiudults
Jessietown	Fine-silty, mixed, semiactive, mesic Typic Hapludults
Kurtz	Fine-silty, mixed, semiactive, mesic Ultic Hapludalfs
Medora	Fine-silty, mixed, active, mesic Typic Fragiudults
Nabb	Fine-silty, mixed, active, mesic Aquic Fragiudalfs
Negley	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Oldenburg	Coarse-loamy, mixed, active, mesic Fluvaquentic Eutrudepts
Pekin	Fine-silty, mixed, active, mesic Aquic Fragiudults
Peoga	Fine-silty, mixed, superactive, mesic Fragic Epiaqualfs
Piopolis	Fine-silty, mixed, active, acid, mesic Typic Fluvaquents
Rarden	Fine, mixed, active, mesic Aquultic Hapludalfs
Rohan	Loamy-skeletal, mixed, semiactive, mesic Lithic Dystrudepts
Scottsburg	Fine-silty, mixed, semiactive, mesic Aquic Hapludults
Shircliff	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Spickert	Fine-silty, mixed, active, mesic Typic Fragiudults
Steff	Fine-silty, mixed, active, mesic Fluvaquentic Dystrudepts
Stendal	Fine-silty, mixed, active, acid, mesic Fluventic Endoaquepts
Stonehead	Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs
Trappist	Fine, mixed, semiactive, mesic Typic Hapludults
Wakeland	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
Weddel	Fine-silty, mixed, active, mesic Fragic Oxyaquic Hapludalfs
Wellrock	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Whitcomb	Fine-silty, mixed, active, mesic Aeric Paleaquults
Wilbur	Coarse-silty, mixed, superactive, mesic Fluvaquentic Eutrudepts
Wilhite	Fine, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Wirt	Coarse-loamy, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Wrays	Fine-silty, mixed, active, mesic Typic Hapludults

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